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ABSTRACT

Presented is a guide designed for teachers who have gifted students. Lessons designed for the gifted student are suggested. More than a dozen sample lessons are provided. Lesson titles include: Folk Songs, Geometry, Graphing Leaves, Creating a Nature Trail, The New Science of Ethology, and Original Research. In addition to the lessons, advice for teachers is presented. Topics discussed include: learning contracts, options to consider for elementary students with superior mathematical ability, learning-center stations, and curriculum modification for superior readers at the elementary school. (MK)

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It's Time to
CHALLENGE
the Gifted

Some Jested Lessons
K-9

State of Minnesota
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Division of Instruction
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I. Within the Classroom

- A. Provide enrichment exercises instead of about half of the exercises that the rest of the class is assigned. In this way the high ability students' skills will be maintained along with the development of his math ability.
 1. Two excellent enrichment sources are: Clack, Alice and Leitch, Carol. Amusements in Developing Metric Skills. Midwest Publications, P. O. Box 129, 1700 West Maple Road, Troy, Michigan 48084. 1973 and Clack, Alice and Leitch, Carol. Math Amusements in Developing Skills. Midwest Publications. 1974.
- B. Form a special math group for those with superior math ability. The Self-Managing Reading Group Plan can be adapted for this group.
- C. Individual or groups of high ability students may compose math problems (especially word problems) for total class.

II. Intra-Grade Math Class

Form a class of students within sections of one grade who have the most advanced math ability. Plan the curriculum so that the students are challenged by the pace, as well as depth of the subject matter.

III. Math Instruction in Advanced Grade

- A. Is usually best to place students only one grade above grade level. After monitoring this placement for a period of time, in exceptional cases, he or she may be placed another grade ahead.
- B. For sixth grade students arrangements can usually be made for students to take math with seventh graders.

IV. Team Teaching

Students with superior math ability will meet with one member of the team for part or all of their instruction.

V. Resource Teachers (S.L.B.P., Volunteer, Teacher of the Gifted, etc.)

Work on a part-time basis with individual or small groups of students. Emphasis should be on student inspired math units and projects.

VI. Learning Centers within the Classroom

- A. Teachers may develop activities.
- B. High math ability students may individually or in committees design and produce math activities for each other.
- C. High math ability students may form a service club and devise activities for rest of class.

VII. School Activity Periods (Mini-classes)

Teachers or volunteers could offer nongraded classes such as: Numberama, an activity designed for mathematical fun; The Numbers Game, an activity which covers the metric system, geometric figures, linear measurement, compass constructions, the slide ruler; The Computer; Electronics; or Puzzles and Games.

SILENT MATH MATRIX

2



5

6

MATH PUZZLES

1. Joe, Sam and Lou decided to go to a show in a town 100 miles away. At first, Joe and Lou rode a scooter at 25 mph, and Sam walked at 5 mph. Then after a while Lou got off the scooter and began walking at 5 mph while Joe turned around and went back to pick up Sam. Joe brought Sam into town at the same time Lou arrived. How long did the trip take?
2. Tom, Joe, Kate and Sam live in a row of houses with red, pink, blue and gray roofs. Sam's is blue. Tom has one neighbor, and Joe has two. The red roof is two houses away from the blue. The gray roof is on the end of the block. Sam's only neighbor is an old maid. Whose roof is pink?
3. The following series of letters in this quick perception puzzle stand for something. What should the next letter in the series be?
JPFAMJJASON
4. Two turtles are at the starting line, ready for a race around a rock. The young turtle can whiz around it in four hours. The old turtle needs six hours. How long will it take the young turtle to gain a full lap and pass the old turtle?
5. A weight-conscious housewife received a box of candy containing 26 chocolates. For every one she ate, she gave her husband a nickel. For every one someone else ate, her husband paid her eight cents. When the candy was gone, no one had gained or lost any money. How many did the housewife eat?
6. A skinny ostrich weighs thirty pounds more than a plump parakeet. The combined weight of both birds is equal to seventeen times the weight of the parakeet. How much does the ostrich weigh?
7. Clyde has ten pieces of chain, each consisting of eight links. The cost of cutting open a link is five cents. It costs a dime to mold it together again. What would it cost to have the ten pieces joined into one chain?
8. Five farmers traded animals. Each got another's pig, a second's cow, and a third's dog. The man who got Ed's dog thought he got Don's pig, but he didn't. One man got Al's pig and Bob's dog. Carl got the man's cow who got Don's dog. Don got a dog from the man who gave Al a pig. Bob got the man's pig who got Carl's cow. Who got Al's dog?
9. Abe, Bill, Carl and Don each own a bird named after one of the other men. Each man also owns a cat named after one of the other men. No two birds and no two cats have the same name. Don's cat and Carl's bird are both namesakes of the owner of the bird Carl. The namesake of Bill's bird owns the bird whose namesake owns the cat Abe. Who owns the cat Don?

10. Three men, Jack, Jim, and Jasper, each work two of the following jobs: cook, salesman, barber, actor, dog catcher and plumber. Assuming that none of the men share an occupation, what are the two jobs of each man? The plumber offended the cook by laughing at his apron. Both the cook and the actor go fishing with Jasper. The barber bought a razor from the salesman. The plumber dated the barber's sister. Jack beat both the barber and Jim at poker. Jim owes the actor \$10.00.
11. When Raymond is as old as Bert is now, he'll be five times Herb's present age. By then, Herb will be eight years older than Raymond is now. The combined ages of Raymond and Bert total 100 years. How old is Herb?
12. Wanda Wick lit two candles of the same length. One burned away in six hours. The other burned away in three hours. How much time passed before one candle was twice as long as the other?
13. Harry says that two bobbles are worth three bangles and one bing. He'll swap 25 bleemers for 3 bobbles, 2 bings and one bangle. How many bleemers will Harry give for ten bangles?
14. A boy has nickels, dimes, and quarters. He has 11 dimes and quarters. If his dimes were nickels and his nickels were dimes, these two kinds of coins would total 95 cents. All of his coins total two dollars. How many nickels does he have?
15. Agnes went downtown to buy a new hat. Short of money, she borrowed an amount equal to the cash that she had with her. She paid \$8.00 for the hat, then got another loan equal to the amount she had left. She paid \$8.00 for a purse, then got another loan equal to the amount she had left. She paid \$8.00 for a pair of shoes. By this time, Agnes was completely out of money. How much did she borrow altogether?
16. Working alone, Ike Crow can build a bird house in three hours. The same job takes Leonardo Finch six hours. How long would it take both men, working together, to build one bird house?
17. At a certain time of day a fence post casts a shadow eight feet long. At the same time, a tree's shadow is 64 feet long. If the fence post is six feet tall, how tall is the tree?
18. A number divided by 10 leaves a remainder of 9. Divided by 9 it leaves a remainder of 8, by 8 leaves a remainder of 7, and so on, so that when finally divided by 2 it leaves a remainder of 1. What is the number?
19. All Perkles are the same size and shape. All pink Glinks are the same size and shape. Twenty Perkles just fill up a Zoofin. All Kleepers contain pink Glinks. A pink Glink is 10% larger than a Perkle. A Kleeper is smaller than a Zoofin.
Question: If all Zoofins and all Kleepers are predominantly blue throughout what is the largest possible number of pink Glinks in a Kleeper?

Math Puzzles Page 3

20. Ann, Fran, Jan and Elsie all collected pickle jars. Together they had a total of 172 jars. When they decided to divide them evenly, Ann gained 12, Jan lost 17, and Fran gained 9. Did Elsie gain or lose? How many?
21. At what times between 7 and 8 o'clock, correct to the nearest minute, will the hands of a clock form an 84 degree angle?
22. A snail who wanted to "get away from it all" took a trip up a flag pole. He got half way up the first day; a third of the remainder the second day; then climbed a 4th, 5th, 6th, and 7th of the distance remaining on the 3rd, 4th, 5th, and 6th days respectively. On the 7th day he climbed two feet, four inches, and reached the top. How high was the pole?

MATH PUZZLE ANSWERS

1. Eight hours
2. Kate's roof is pink
3. The next letter in the series should be D (for December)
4. 12 hours
5. 16
6. 32 pounds
7. \$1.20
8. Carl
9. Carl
10. Jack is the actor, plumber
Jim is the cook, salesman
Jasper is the barber, dog catcher.
11. Herb is 13
12. Two hours
13. Five
14. Six
15. Seventeen dollars
16. Two hours
17. 48 feet
18. 2519
19. Eight
20. Elsie lost four
21. 7:23 and 7:53
22. 16 feet, 4 inches

PUZZLES IN THOUGHT AND LOGIC

1.) SEND
+MORE
MONEY

2.) SPEND
-MORE
Money

3.) ale
rum
wine
wuw1
ewwe
ermone

4.) fur
dog
ager
drip
fur
riper

5.) seven
-nine
eight

6.)* eleven
-three
eight

7.) ooe Jeooe
oeo
ooo
oeo
eoe
eoe

8.) If the letter A represents equally well any of the digits 0, 1, 2, 3, or 4 and if, similarly, the letter Z stands for any of the digits 5, 6, 7, 8, or 9, decode the following multiplication.

AZA
AAZ
AAAA
AAZZ
ZAA
ZAZAA

9.) abj
eca fdhbj
cgg
agah
aaca
kddj
kdbh
aj

10.) In a certain multiplication problem one of the digits was replaced on each occurrence by the letter X, another digit was replaced by the letter Y upon each occurrence, and the remaining digits were completely suppressed. What two numbers were multiplied?

...
X.
X..Y
XY
XY

ANSWER SHEET TO THOUGHT AND LOGIC PUZZLES

$$\begin{array}{r} 1.) \quad 9567 \\ + 1085 \\ \hline 10652 \end{array}$$

$$\begin{array}{r} 2.) \quad 20579 \\ - 1825 \\ \hline 18754 \end{array}$$

$$\begin{array}{r} 3.) \quad 605 \\ 987 \\ \hline 4235 \\ 4840 \\ \hline 5445 \\ \hline 597135 \end{array}$$

$$\begin{array}{r} 4.) \quad 395 \\ 147 \\ \hline 2765 \\ 1580 \\ \hline 395 \\ \hline 58065 \end{array}$$

$$\begin{array}{r} 5.) \quad 21514 \\ - 4641 \\ \hline 16873 \end{array} \quad \text{or} \quad \begin{array}{r} 54146 \\ - 6764 \\ \hline 47382 \end{array}$$

6.) Impossible

$$\begin{array}{r} 7.) \quad 732 \\ 116 \overline{)84912} \\ \underline{812} \\ 371 \\ \underline{348} \\ 232 \\ \underline{232} \end{array}$$

$$\begin{array}{r} 8.) \quad 372 \\ 246 \\ \hline 2232 \\ 1488 \\ \hline 744 \\ \hline 91512 \end{array}$$

$$\begin{array}{r} 9.) \quad 265 \\ 372 \overline{)98605} \\ \underline{744} \\ 2420 \\ \underline{2232} \\ 1885 \\ \underline{1860} \\ 25 \end{array}$$

$$\begin{array}{r} 10.) \quad 364 \\ 27 \\ \hline 2548 \\ 728 \\ \hline 9828 \end{array}$$

CURRICULUM MODIFICATIONS FOR SUPERIOR READERS IN THE ELEMENTARY SCHOOL

<u>GRADES</u>	<u>WITHIN CLASSROOM</u>	<u>INTRA-GRADE READING</u>	<u>INTER-GRADE READING</u>	<u>READING INSTRUCTION IN ADVANCED GRADE</u>	<u>TEAM TEACHING</u>
KINDERGARTEN	1. Read to classmates. 2. Form reading group of those who can read.		1. Read with appropriate group. (Consider whether or not child should do written work.)	1. Read with a first grade class. Should probably not include written work.	1. One teacher conduct reading class for readers.
GRADE	1. Reading group for advanced readers. 2. Additional individualized reading activities (e.g., Sullivan, SRA, etc.).	1. Read with top first grade reading class.	1. Read with appropriate group. (Consider whether or not student should do written work.)	1. Read with a second grade class. (Consider whether or not student should do written work.)	1. One teacher conduct an advanced reading class.
SECOND GRADE	1. Reading group for advanced readers. 2. Additional individualized activities.	1. Read with top second grade reading class.	1. Read with appropriate group. (Caution in requiring written work.)	1. Read with a third grade class. (Use caution in requiring written work--perhaps a limited amount.)	1. Same as above.
THIRD GRADE	1. Reading group. 2. Additional individualized activities. 3. Self-managing extended reading program.	1. Read with top third grade reading class.	1. Read with appropriate group.	1. Read with a fourth grade class.	1. Same as above.
FOURTH GRADE	1. Same as above. 2. Same as above. 3. Same as above.	1. Read with top fourth grade reading class.	1. Read with appropriate reading class.	1. Read with a fifth grade class.	1. Same as above.
FIFTH GRADE	1. Same as above. 2. Same as above. 3. Same as above. 4. Consider an additional self-managing group for exceptional students.	1. Read with top fifth grade reading class.	1. Same as above.	1. Read with a sixth grade class.	1. Same as above.
SIXTH GRADE	1. Same as above. 2. Same as above. 3. Same as above. 4. Same as above.	1. Read with top sixth grade reading class.	1. If have had top reading class already, develop self-managing groups.	1. Develop on or two self-managing reading group for each advanced student. 2. Might add self-managing spelling program.	1. Same as above. 2. Expand reading to include dramatization of plays, etc. 3. Begin to write stories for others.

	RESOURCE TEACHER (SLBP, volunteer, resource teacher, etc.)	LEARNING CENTERS IN CLASSROOM	JUNIOR GREAT BOOKS	SCHOOL ACTIVITY PERIOD (mini classes, etc.)	LIBRARY
K G N.	1. Work with individual child or with group of readers on appropriate lessons.	1. Teacher set up a reading corner with appropriate books and activities.	1. In a few very special cases child might bene- fit from Series 1 class.	1. Child choose activity. Include a reading club or related activity.	1. Free use of library. Teacher discuss child's ability with librarian.
F I R S T	1. Same as above.	1. Child(ren) invited to make learning center activities for class.	1. Child(ren) <u>might</u> be able to enjoy Series 1 class.	1. Include drama, poetry, newspaper, magazine clubs.	1. Free use. 2. Librarian may work with student on a project.
S E C O N D	1. Same as above. Try to work with a group rather than one student.	1. Form committees to produce learning center reading activities. Consider one committee of advanced readers.	1. Series 1 appropriate for many advanced readers.	1. Enlarge offerings.	1. Free use. 2. Group of advanced readers may work on resource file of books they've read, etc.
T H I R D	1. Work with a group of advanced readers.	1. Same as above. 2. Expand into language arts learning centers.	1. Series 1 for all, perhaps some would enjoy Series 2.	1. Enlarge offerings to book discussion, crossword puzzle clubs, etc.	1. Free use. 2. Enlarge (2.) above.
F O U R T H	1. Same as above.	1. Same as above. 2. Expand responsibility to include correcting.	1. Series 2 and possible Series 3 class for some.	1. Continue to expand offerings. 2. A few students might be able to conduct classes.	1. Free use. 2. Produce a monthly book review digest.
F I F T H	1. Same as above. 2. Might initiate a Service Club wherein students would design and conduct reading classes for younger children.	1. Same as above. 2. Same as above. 3. Create learning center activities for other classes.	1. Series 2 or Series 3.	1. Expand to include debate discussion groups, cur- rent events, etc.	1. Free use. 2. Same as above. 3. <u>Very</u> limited aid such as shelving.
S I X T H	1. Same as above. 2. Same as above. 3. Keep records of progress of own students.	1. Same as above. 2. Same as above. 3. Develop a resource file of learning center activities.	1. Series 3 or Series 4. 1.2. Conduct a few sessions of a Series 1 group under supervision.	1. Expand to world problems, Shakespeare, etc.	1. Free use. 2. Conduct library classes for young children.

SELF-MANAGING READING GROUP PLAN

To the student:

You have been selected by your teacher as a very capable reader and a responsible student. You are to be a member of a small group of students who will become involved in an independent reading plan.

Procedure for Independent Reading Plan:

- A. Choose a chairman and a secretary for your group. They will serve the group for approximately two weeks then other students will be chosen.

The chairman will:

- a. Write the group's reading assignment on the board each day.
- b. Conduct the group meeting after all have completed the assignment.

The secretary will:

- a. Keep a notebook in which the names of the students are listed.
- b. Collect the papers after a group discussion.
- c. Check off the papers for each student in appropriate columns in the notebook.
- d. Give the papers to the teacher.

Each student in the group will:

- a. Read the assignment.
 - b. Prepare the following in writing;
 1. A summary of the story in one or two sentences.
 2. Two questions on the story-these questions should begin with words why or how.
 3. A list of the difficult words from the story.
 - c. Read a library book when he has finished reading the assignment and completed the written work.
- B. Reading-group meetings are held when members of the group have completed the reading assignment and the written work. The chairman conducts the meeting. The steps below are followed in these group meetings.
- a. Each member of the group reads his sentence of what the story is about.
 - b. The chairman calls on each member to ask one of the questions he has composed. Members of the group will take turns answering these questions.
 - c. Each member presents three difficult words. The groups helps with the meaning and pronunciation of the words. The group may decide to have difficult words looked up in the dictionary before the group meeting.
 - d. Members tell what part of the story each liked best. They discuss anything new or interesting they have learned from the story.
 - e. At the end of the discussion period the secretary collects the papers after making certain the student's name is on the paper.

Purposes

The self-managing reading group plan, devised by the author and used successfully by many teachers, has the following advantages:

- 1) It is easy to administer.
- 2) It provides for individual differences.
- 3) It trains children in self-reliance and in democratic committee work and in leadership.
- 4) It instills in children a more favorable attitude toward reading.
- 5) It frees the teacher to give individual and small-group remedial and enrichment instruction.
- 6) It affords all children a greater amount of daily practice in oral and written composition.
- 7) It requires each child to actively participate in the learning process.
- 8) It assists introverts in becoming more outgoing, articulate, and in establishing friendships.
- 9) It brings peer pressure in assisting children to overcome anti-social behavior.
- 10) It facilitates the administration of multi-test reading in science and social studies.

Procedure

The class is divided into five or more reading groups on the basis of standardized reading-test scores, information from previous teachers, texts previously read, and observation of the child's oral and silent reading. There should not be more than a six-month range in reading ability among the pupils within any group. Group size should be between four and seven with five or six as the optimum number. When a group receives its eighth member, the group should be divided. Grouping should be flexible, and pupils should be moved from one group to another on the basis of individual progress.

After explaining the job of the chairman and secretary and discussing the qualities desired in a chairman and secretary, the teacher has each group elect a chairman and a secretary. The opportunity to "conduct your own reading group" is presented as an honor and privilege. The groups are organized one at a time, starting with the top group. Another group is not formed until the first group runs smoothly.

Each group is provided with several reading texts of appropriate difficulty. The texts may be at, below, or even several years above grade level. The group selects the one it would like to read first. Selection of the reader by the group creates a more favorable attitude toward the book.

At the beginning of the reading period the teacher, or preferably the chairman, puts the reading assignments on the chalkboard. Generally the stories are assigned in the sequence in which they occur in the book, but not necessarily. Chairmen should be instructed to select the assignment well in advance so that it will be on the chalkboard when the reading period begins. (1)

1) "The order of the stories can be reversed without prejudice to the value of the book as it relates to the building of reading skills." William Gray, Adjusting Reading Programs to Individuals, Supplementary Education Monograph Number 52. (Chicago: University of Chicago Press, 1941), page 148.

Each child in the group, including the chairman, reads the assignment, after which the following are prepared in writing:

(1) A brief two-to-five-sentence summary of the story. Writing summaries improves the student's ability to separate essentials from non-essentials and to extract the general significance of what is read.

(2) Compose two questions on the story. The questions should begin with the words why or how. (What, when, or where questions are not acceptable because they require neither reflective thinking nor insight to compose or answer. How or why questions ("Why was the house built on top of the hill?") are more thought-provoking than simple factual questions (What color was the house?) Practice in asking insightful questions is a skill often neglected in school. Wisdom consists not merely in knowing the answer to questions posed by someone else. One should also know how to ask questions.)

(3) List the unfamiliar words encountered in the reading. Generally, if the student is not encountering about half a dozen unfamiliar words (excluding proper nouns), the book is too easy.

When the assignment is finished, each child should have a library book. He should not be allowed to read ahead independently in the reader.

Group meetings are held about the last ten minutes of the period. The teacher moves from group to group. The chairmen conduct the meetings. Each group need not meet each day. If the assigned selection is too long to complete in one period, the group meeting is delayed until the following day or until the assignment is completed.

The following six steps of reading-group-meeting procedure are written in the chairman's notebook:

(1) Each member of the group reads his summary. The group decides who has summed up the story most successfully and why.

(2) The chairman calls on each member of the group to ask the questions he has composed. Each individual is given an equal opportunity to answer the questions. When disagreements over the correct answer arise, the disputants are required to read orally the part of the story which proves their answer is the correct one.

(3) Each member presents his hard words. The group helps him with the meaning and sounding of the words. Each group has a dictionary. The teacher is available as a resource person.

(4) Members indicate what part of the story each liked best.

(5) They discuss anything new or interesting they have learned from the story.

(6) The secretary collects the papers, checks them off against the names in the notebook making sure that each paper has a summary, two how or why questions, and three or more hard words. The secretary turns in the papers to the teacher, reporting anyone in the group who has not fulfilled the assignment.

Special short-term group situations which overlap the regular reading groups are organized, and pupils with common needs are brought together for special instruction at various times during the reading period. Generally, an instructional session does not exceed ten to twenty minutes so that the pupil still has time to do his regular reading assignment and to meet with his regular reading group.

Free library reading is usually handled in the following manner:

Most children will have opportunity after they finish their assignment to do some individualized free reading each day. In addition, one day a week is often devoted exclusively to individualized free reading.

Each child keeps a reading record in which he records the following information regarding books read: title, author, source (school library, city library, home, etc.), type (horse, mystery, adventure, etc.), and a brief reaction (excellent fair, etc.).

By consulting one another's reading records, pupils can recommend books to group mates. In general, pupils are discouraged from consulting the reading records of members of higher or lower groups.

For each book read, a simple book report form is usually also required to aid the teacher in assessing and guiding the child's reading. The report form should be as simple as possible. The typical book report often requests so much information that the child regrets having read the book. A sample report is given here:

My name _____ Date _____
 The name of the book _____
 The name of the author _____
 The number of pages which I read _____
 Would you like to read more books like this one? Yes _____ No _____
 What was the best part of the book? _____

On the free reading day, oral book reports are made at the end of the period in the reading groups. If no pupil in the group has completed a book during the week, a meeting is not held. Students do not report to the entire class, but report only within their own groups.

The oral book report usually follows this form:

- (1) Show the book.
 - (2) Tell the title and author and source.
 - (3) Tell the type of book.
 - (4) Tell what it is about in ten to twelve sentences.
 - (5) If there was something new or interesting you learned from the book, tell what it is.
 - (6) Read orally a few paragraphs or pages at the part you liked best.
- Be careful not to give away the outcome of the story.

Occasionally the "interview technique" is used, particularly in assessing reading in biographical books. The student reporting on the book plays the role of the subject of the book and another student or panel of students interviews him.

Summary

- A. The teacher or the group chairmen put the reading assignments on the chalkboard at the beginning of the period.
- B. Each pupil in the group:
 1. Reads the assignment.
 2. Prepares the following in writing:
 - a. Summarizes the story in one or two sentences; the sentences would tell who, what, when, where and why.
 - b. Composes two questions on the story -- these questions should begin with the words why or how.
 - c. Lists the difficult words from the story or free reading books.
 3. When the pupil finishes the assignment, he reads a library book.
- C. Reading-group meetings are held the last ten minutes of the period. The teacher circulates from group to group. The chairman conducts the meeting. These six steps are followed in the group meetings:
 1. Each member of the group reads his sentence of what the story is about.
 2. The chairman calls on each member to ask one of the questions he has composed. Each individual is given a fair chance at asking and answering these questions.
 3. Each member presents his three difficult words. The group helps him with the meaning and sounding of the words. Some teachers prefer to have difficult words looked up in the dictionary before the group meeting. Each pupil pronounces his difficult words and tells what they mean.
 4. Members indicate what part of the story each likes best. They discuss anything new or interesting that they have learned from the story.
 5. The secretary collects the papers, checks them off against the names in his notebook, turns in the papers to the teacher, and reports to the teacher anyone in the group who has not fulfilled the assignment.
 6. The teacher checks the papers and follows up with remedial work as needed.

The teacher checks the papers. Difficult words are noted and used as a basis for future individual or group work on improvement of word-recognition skills. Pupils who have chronic difficulty summarizing what they have read are noted for future remedial assistance in extracting the general significance of material.

The papers are handled as written compositions. Standards of handwriting, spelling, capitalization, punctuation, sentence structure, and language usage are maintained. Errors are noted and used as the basis for individual and/or group remediation during language period.

Having groups put on demonstration meetings for the rest of the class is effective in up-grading the quality of the group meetings.

Groups whose reading level is below fourth grade are usually not put into the self-managing group plan.

When a group completes a book, the teacher appraises the group's readiness to go into a book of a more difficult level.

Any pupil who is reported by the chairman as being a disruptive influence is removed from the group and, although held responsible for the assignment, is not allowed to attend group meetings until a week or so has elapsed, and he has made several requests for reinstatement.

Modifications of the procedure are made from time to time for purposes of variety.

Often the text contains one or more potential dramatizations. After the play has been read silently, parts are assigned by the chairman, and each participant reviews his part in preparation for in-cast reading before the class.

Poems, after being read silently, are read orally and discussed in the group under teacher direction.

If the selections in the reader are accompanied by comprehension test questions, these questions rather than pupil-prepared questions may be used.

Occasionally group meetings are devoted to oral reading in which members take turns reading the parts of the story liked best, or locate and read paragraphs which answer specific questions. The teacher meets with the group on these occasions to evaluate and discuss the child's pronunciation, word attack skills, expression, phrasing, speed, and fluency, and the listening skills of the group.

It is desirable to periodically rotate the job of chairman and secretary so that each child has a turn.

Since the teacher does not have to read the story nor prepare lessons from the manual as in the XYZ group plan and is free, except toward the end of the period when group meetings are being held, the teacher has ample opportunity to work with individuals in the diagnosis of reading disabilities and the guidance of library reading and to work with small groups in the development of reading skills in areas of word recognition, comprehension, study skills, and rate of reading.

Purposes

The self-managing spelling group plan, has the following advantages:

- 1) It is easy to administer.
- 2) It provides for individual differences.
- 3) It trains children in self-reliance and in democratic committee work and in leadership.
- 4) It instills in children a more favorable attitude toward spelling.
- 5) It requires each child to actively participate in the learning process.
- 6) It assists introverts in becoming more outgoing, articulate, and in establishing friendships.
- 7) It brings peer pressure in assisting children to enjoy social behavior.
- 8) It provides superior spellers with challenging spelling lessons rather than boring experiences in spelling.

Procedure

A group of children who consistently spell above grade level is formed on the basis of standardized spelling scores, information from previous teachers, and observation of the child's informal spelling. Group size should be between four and seven with five or six as the optimum number. When a group receives its eighth member, the group should be divided. Grouping should be flexible, and pupils should be moved in and out of the group on the basis of individual progress.

After explaining the job of the chairman and discussing the qualities desired in a chairman, the teacher has the group elect a chairman. The opportunity to "conduct your own spelling group" is presented as an honor and privilege.

The group is provided with several spelling lists of appropriate difficulty or makes up its own lists of words each week. The list may be at, or several years above grade level. The group selects the list it would like to try first. Selection of the list by the group creates a more favorable attitude toward the list.

At the beginning of the spelling period the teacher, or preferably the chairman, puts the spelling assignments on the chalkboard. Generally the words are assigned in the sequence in which they occur in the list, but not necessarily. Chairmen should be instructed to select the assignment well in advance so that it will be on the chalkboard when the spelling period begins.

Each child in the group, including the chairman, reads the list after which the following things are done:

- 1) Discuss meaning of each word.
- 2) Orally give a sentence using each word.
- 3) Choose partners and practice dictating words to each other until both can spell words perfectly.
- 4) Teacher dictates words on Thursday, and students write them in spelling notebooks.
- 5) Group members study words they have misspelled until they know them.
- 6) Partners dictate misspelled words on Friday.
- 7) Words still misspelled are added to specific children's list of words for following week so that words are carried from week to week until they are learned.

Any pupil who is reported by the chairman as being a disruptive influence is removed from the group.

Modifications of the procedure are made from time to time for purposes of variety.

It is desirable to periodically rotate the job of chairman so that each child has a turn.

"LEARNING CENTERS-STATIONS -- A CHOICE FOR EVERY CHILD"

I. INTRODUCTION-DEFINITIONS

- A. GENERAL - Centers-stations in the self-contained classroom is an approach to provide structure for children to engage in independent activities.
- B. INGREDIENTS OF CENTERS-STATIONS
 - 1. Purpose: Should not be set up if there is no purpose for the child.
 - 2. Media: Variety should be inherent in the materials the child uses.
 - 3. Predicted Outcome: A child's accomplishments are judged in relation to the purpose.
- C. CENTERS - A learning center can stand by itself and need not have other centers to support. It can be:
 - 1. A have to: One where the child has been diagnosed and is required a level of achievement at a center.
 - 2. A want to: An area to work in because the child wants to.
- D. STATIONS - A station is a part of a unit or a group of centers put together to form a unit. One station usually can not be a separate entity. Stations are for providing background and follow-up material. A station set up in NO WAY can be the only ingredient in a unit. It is a part of a unit. A unit can not be taught by only using stations.

II. IDEAS IN SUPPORT OF CENTERS

- A. CHILD CENTERED - The conception and/or purpose of any center has its beginning and end with an individual child or a group of children. The purpose, choice of media, and predicted outcome are only the vehicles by which a child learns.
- B. PRE-TEST - Allows the student and teacher to sit down to discuss progress to date and what direction to go - prescription. With the center-station concept the prescription is more that a worksheet or workbook....a meaningful useful experience.
- C. INVOLVEMENT - Provides a variety, a direction to go so consequently all children have something to do... several do not have to watch one child doing...they all will be doing at one time or another.

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- D. FLEXIBILITY - Children are given the opportunity to complete tasks over a period of a couple of days or a week. The child has to do the work when he has "a feel" for it with an ultimate completion date.
- E. VARIETY - ALTERNATIVES - Using a variety of media and an opportunity for choice is available using centers. One does not have to practice the same concept or skill with one media but has many avenues to pursue. Variety does add spice along with enjoyment.
- F. SUCCESS-ORIENTED - Evaluation is essential but grading is seldom done. All work is set up not for a child to fail or "stump" him but to insure a positive successful experience. A positive successful experience can not be accomplished by areas "too easy". Answers are provided in practice areas.
- G. INDEPENDENCE - All students operate all equipment as a starter. The responsibility is switched to a child learning and not just the teacher teaching. Children keep themselves occupied.
- H. MOTIVATION - Centers-stations use gimmick, grabbers, equipment, etc., as the route to learning. Learning can be fun.

III. PURPOSES OF CENTERS - STATIONS

- A. PRACTICE - A teacher only has so much time. The student can practice on his own. Centers-stations provide this structure and base.
- B. APPLICATION OF PREVIOUSLY TAUGHT CONCEPTS - Too many times a skill or concept is taught and then dropped. Centers-stations provide the extension for application of previously taught concepts or skills.
- C. CHANGE OF PACE - Adults need a break, children are no different. However, this change of pace can be very beneficial in a variety of ways (learn new games, develop new friends, use independent time wisely.)
- D. PRESENT BACKGROUND INFORMATION - It is difficult to discuss and hold a discussion when students know little about the topic. Facts, case studies, and general information can be disseminated via center-station. This can be done a day or week previous to the time of discussion.

Page 3

- E. PRACTICAL APPLICATION - Catalogs, telephone books, menus, etc., are used to bring the everyday need to a skill. The children easily visualize the use of their learning.
- F. BETTER USE OF REFERENCES - With a number of areas to go to four or five references can be spread around. As there would be only four or five at a given area, it means each child has a reference to use to complete the task without needing 30 copies of the reference.
- G. OPPORTUNITY FOR EXPRESSION - One does not always feel creative the same day the teacher decides upon the assignment. With centers-stations a child always has an area for expression, may it be writing, art, oral reading, etc.

IV. PHYSICAL STRUCTURE

- A. TOTAL ROOM DESIGN - It is up to individual teachers but desks are usually in clusters with every available space used. Room furniture as cabinets, piano, etc., are set perpendicular to formulate areas of privacy. All possible wall, shade, ceiling area should be used for display.
- B. "TAKE TO" - Designed to take from a shelf or area to any part of the room, may it be to the desk, hall, or floor. It is to be returned after use and housed by tub or tray.
- C. "GO TO" - Physically set-up so it can not be moved due to tasks or need of electricity, etc. The child comes to this area and stays for completion of assignment. All materials are located there and not at a variety of spots around the room.

V. CENTERS - STATIONS, KINDERGARTEN THRU GRADE SIX

- A. VARIETY OF MEDIA - Great care must be taken not to overwork a specific kind of media. Keep variety flowing in the direction of the students. At a given time the best variety may be no center at all.

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- B. DIAGNOSIS-PRESCRIPTION - All centers-stations must have a base to start from and come back to as there must be continuity and progression according to need. A center for center sake is not wise but there must be a need as found through diagnosis of concepts or skills.

VI. EVALUATION

- A. GAMES - The game has an intended purpose so if the child completes or wins one must assume mastery of the skill being used. If continual frustration, a less complicated game must be programmed.
- B. PRODUCTS - The product from a center-station is not only used to evaluate the present center, but also for future needs and prescriptions. The product may be evaluated cooperatively by student-student or teacher-student.
- C. MANIPULATIVE RESULTS - Rather self-explanatory....if explicit directions are given for a manipulative exercise (as reproduce special formation...copy) one only has to compare the original with the child's copy.
- D. SELF-CORRECTING - Children are forced to cheat only when pressure of grades are present. As one provides answers for self corrections an atmosphere of practice for command of concept or skill rather than practice for the grade takes over.

VII. SUMMARY

The center-station concept is not the only alternative to education, but its structure does provide the opportunity to meet individual and collective needs of children.

CLOTHESPIN MATCHING

The simple wooden clothespin can serve as a stimulation for learning, as shown in the nine matching games in this section. In fact, this household object, in the hands of a creative teacher, can be put to almost as many uses as pencils and worksheets. What's more clothespins are cheap.

Illustrating the adaptability of the clothespins are games that involve the following concepts:

- | | |
|------------------|----------------|
| --abbreviations | --contractions |
| --antonyms | --blends |
| --synonyms | --prefixes |
| --homonyms | --suffixes |
| --compound words | |

Construction

Materials:

- One 5-by 10-inch board cut from heavy cardboard
- Clip clothespins (the number may vary, depending on the activity)
- Cardboard of which to make an answer card
- Container (box or envelope) for storage

Preparation -- Put the title of the game across the top of the playing board as in figure 3, or on a title card, as in figure 4. It really doesn't matter about location so long as the pupils understand the procedure.

Arrange the material in a column down the left side of the board so that each item can be matched by a clothespin that has had mounted or written on it the corresponding information.

Make an answer card that shows the words (or blends or pictures) correctly paired with the information on the pins. Place the answer card in an envelope that is attached to the back of the playing board.

Store the clothespins and playing board in a box.

Directions for Use

The clothespins for each activity will be placed on a desk or table in jumbled fashion. The player is to clip each pin on the right edge of the board in line with the item to which it should be matched or paired. When he has attached all the pins, he removes the answer card from the envelope on the back of the board and checks his answers.

FORMULA ANALYSIS TEST--REVISED FORM
by Morgan Worthy

1. $M. + M. + N.H. + V. + C. + R.I. = \underline{N.E.}$ (1) _____
2. "1B. in the H. = 2 in the B." (2) _____
3. $8D. - 24H. = \underline{1W.}$ (3) _____
4. H.H. & M.H. at 12 = N. or M. (4) _____
5. $3P. = 6$ (5) _____
6. $4J. + 4Q. + 4K. =$ all the F.C. (6) _____
7. S. & M. & T. & W. & T. & F. & S. are D. of W. (7) _____
8. $A. + N. + A.F. + M.C. + C.G. = \underline{A.F.}$ (8) _____
9. T. = L.S. State (9) _____
10. $23Y. - 3Y. = \underline{2D.}$ (10) _____
11. $E. - 8 = \underline{Z.}$ (11) _____
12. $8P. = \underline{1G.}$ (12) _____
13. $C. + 6D. = \underline{N.Y.E.}$ (13) _____
14. S.R. of N. = 3 (14) _____
15. A. & E. were in the G. of E. (15) _____
16. My F.L. & South P. are both M.C. (16) _____
17. "N.N. = C.N." (17) _____
18. $N. + P. + S.M. = \underline{S. of C.}$ (18) _____
19. $1 + 6Z. = \underline{1M.}$ (19) _____
20. B. or G. - F. - M. = 0 (20) _____
21. "R. = R. = R." (21) _____
22. A.L. & J.G. & W.M. & J.K. were all A. (22) _____
23. $N. + V. + P. + A. + A. + C. + P. + I. = \underline{P. of S.}$ (23) _____
24. S. + H. of R. = U.S.C. (24) _____
25. P. & N. & D. & Q. & H.D. are all C. (25) _____
26. $Y. - S. - S. - A. = \underline{W.}$ (26) _____
27. $Y. + 2D. = \underline{T.}$ (27) _____

Student Seminars and Enrichment Classes

I. Student Seminars

- A. Teachers conduct seminars for small groups of selected for their ability. As many students as possible are chosen to participate. Students from different grades may be in the same seminar; that is, of eleven students in a seminar, some might be from fourth, some from fifth, and some from sixth grade. Students are encouraged to explore subjects of interest that are new to them. To quote Mr. O'Donnell, "The emphasis is not on measurable knowledge gained, but rather on the learning experience." For example, in one seminar, the Study of Culture, the students decided to create a civilization. Grappling with all the problems of overpopulation, overcrowding, and urban living, they discussed the means of creating an ideal society.
- B. In the seminars, the students, together with the teacher who volunteers to lead the group, select the subject to be discussed. Held twice a week for 45 minutes throughout the school year, the seminars encourage free expression and interchange. Because the teacher and students become deeply involved with each other, the students' motivation to learn is enhanced. Again, the principal and extra teachers take the classes of the seminar teachers while they are leading the seminars. Seminars may be held in the principal's office or the library, in the cafeteria or the patios, on playing field or lawn; the place is far less important than the ideas discussed. As shown in the table below, which covers a year at a school, the seminars are divided between primary and intermediate grades.

K-3	Study of culture	Art-inquiry training	New mathematical ideas	Creative arts and crafts	Spanish
4-6	Scientific discovery	Literature	Speech and drama	Music appreciation	Advanced math

II. Enrichment Classes

- A. There is an enrichment program that begins in the spring and continues to the end of school. The principal believes that, because students get tired toward the end of the school year even in the best school, a special enrichment program will motivate teachers and students to end the school year on a high note. The enrichment program is offered to older students, grades three to six, twice a week for one hour at the end of the school day. The enrichment program is designed to reflect the choice and the skills of the students. The enrichment program is planned by the Student Council, which polls each child in the school asking him to give three choices of activities he would like to participate in or subjects he would like to learn. The Student Council sorts the students' requests and assigns

groups of students to teachers who attempt to fulfill the specific requests of each group. So that there will be enough teachers, the primary teachers, who ordinarily would go home at 2:30 on these days, are asked to stay for an extra hour to teach in the enrichment program. Because of the students' great interest in the program, there is no difficulty persuading the primary teachers to stay two hours more a week for the last nine weeks of the school year. By using the primary teachers, the regular teachers, the principal and, in some cases, the janitor, who teaches trampoline gymnastics, it has been possible to give 85 percent of the students their first choice. Students who don't get their first choice are usually well-satisfied with their second or third choice.

The enrichment program offered in 1966-67 is shown below.

Students with consistent academic achievement

Creative Writing	Math	Library Reading	Creative Expression	Literature
3-4	3-4	5-6	5-6	5-6

Students with high interest in specific field

Nature Study	Around the World	Fundamentals of Architecture	Life in a Drop of Water	Public Speaking
3-4	3-4	4-5-6	5-6	5-6

Activity-centered programs

Music	Drama	Arts and Crafts	Art Ideas	Drawing
3-4	3-4	3-4	5-6	5-6

Special areas

Singing for fun	Oil Painting	Hand-writing	Singing and Composing
3-4	4-5-6	4-5-6	5-6

Except for singing and drama, class size is reduced to twelve. Teachers have found the enrichment program to be an exciting experience; as in the other special programs, students have the opportunity to become involved with teachers they might ordinarily never get to know.¹

¹ Glasser, William. Schools Without Failure. pp. 211-213.

GRADE: 1
TITLE: FOLK SONGS

SUBJECT: MUSIC
TEACHER: MARIE FRIEDERICH
CREST VIEW SCHOOL
OSSEO

I. RATIONALE

In a normal classroom this unit would probably not be taught because of the lack of interest and the time element. However, my children were very creative and interested in going beyond "just singing."

II. OBJECTIVES

- A. To help the children relate to the heritage of our country, to appreciate the music and its meaning of long ago and to recognize this type of music in songs of the past and songs of today.
- B. To identify themselves with the pioneers, geography, and history of the early days of America and to realize that today's folk songs express today's people, just as the folk songs of the past express the lives of the people of the past and to realize that the music expresses the customs, traditions, and emotions of the people.
- C. To "feel" the music and develop an enjoyment for musical expression and to realize that folk music isn't formally composed, but rather develops among the people.

III. MATERIALS

There is a variety of material that can be used for this unit. Use whatever songs and songbooks are available.

- T 1) Carmer, Carl. America Sings. Knopf. 1950. (This book was especially helpful in giving me the background of some of our familiar folk tunes.)
- T 2) The Joy of Folk Songs arranged by Denes Agay, Yorktown Music Company, New York.

IV. PREREQUISITE LEARNING

This unit evolved from a patriotic unit where the children had previously studied about early settlers in America.

V. INTRODUCTORY ACTIVITY

Our class had been discussing the first white people in America with a sudden realization that the pioneers had a great deal of hard work to do. When one of the children brought up the fact that the settlers didn't have television, radios, movies, etc., they began to wonder what the people did for fun. This folk song unit resulted from this discussion.

VI. SEQUENCE OF ACTIVITIES

FIRST DAY

Introductory discussion of early settlers; assignment given to find out what early

SECOND DAY

Discuss homework assignment and learn the characteristics of a folk song.

THIRD DAY

With the help of the music teacher and librarian, books containing folk songs were obtained for our observation.

FOURTH DAY

The children picked out some of the folk songs in whose history they were interested and also wanted to learn to sing. Learning of the first song was begun.

FIFTH DAY

Continue learning songs along with history of each song.

SIXTH DAY

Compare folk singing of today with folk singing of the past. Learn a song from each period.

SEVENTH DAY

Discuss and compare the mode of instrumental expression used to accompany folk singing past and present.

1. Make instruments, e.g. banjo
2. Make display of instruments
3. Accompany songs with homemade instruments
4. An excellent movie entitled, *"Toot, Whistle, Plunk, and Boom"* produced by Walt Disney was shown.

EIGHTH DAY

Using guitars for accompaniment, have a hootenany. If teacher is unable to play guitar, a parent or teacher might be able to accompany the group.

NINTH DAY

Give a program or concert for other rooms, school, parents, nursing home, etc.

TENTH DAY

Write an original folk song (in groups, individually, or as a class).

VII. ADDITIONAL ACTIVITIES

- A. Teach children to play guitar.
- B. Do an in-depth study of modern folk songs.
- C. Study the composers of folk music.
- D. Learn many of the dances that accompany the folk songs.
- E. Make a picture dictionary.

VIII. EVALUATION

I evaluated the success of this unit by observing the enjoyment and interest developed and expressed by each student.

IX. FOLLOW-UP ACTIVITY

- A. Science unit on sound
- B. Science unit on the five senses (this is what followed in our room)
- C. Music unit on instruments
- D. Music unit on other types of music
- E. Music unit on composers

GRADE: 2

SUBJECT: PUBLIC SERVICE

TITLE: PRESENTATION OF PLAYS AND AN AFGHAN

TEACHER: MILDRED GOBLE
BRATNERD PUBLIC SCHOOLS

I. RATIONALE

1. During sharing time one Friday at the beginning of the school year, Jim brought his knitting to school to share the finished product, a pot holder, with his friends in the classroom. The other children became very interested and enthusiastic about learning to knit. One child suggested that they could make squares to be put together as an afghan or lap robe for some person in the nursing home.
2. Children had dramatized three plays during the school year and wanted to perform for a nursing home.

II. OBJECTIVES

Learning to knit

Learning to share the fruits of their labors with others

III. MATERIALS

1. No. 8 knitting needles.
2. Knitting worsted yarn.

BOOKS

Ginn and Company. "Finding New Neighbors" "The Lad and the Northwind", 1961.
 Scott Foresman. "More Friends Old and New" "A Boy and His Goats", 1963.
 Singer, L. W. Company "Story Train" "Andrews Red Cap", 1960.

IV. PREREQUISITE LEARNING

Basic knitting stitch was taught on 30 stitches of cast on yarn.

Children who first mastered the stitch taught other children.

By much trial and error, ripping and reknitting, all but two out of the twenty children in the room learned to knit.

V. SEQUENCE OF ACTIVITIES

1. Each day during the period right after the children came in from the playground after lunch and during the time I read them a story or part of a book (20 minutes each day), the children continued to make their squares.
2. By the end of the year, 30 colorful squares had been completed.
3. Plays were practiced embodying scrips as developed by class.

VI. ADDITIONAL ACTIVITIES

1. Squares were sewed together and the whole thing was crocheted around and blocked, ready for presentation.
2. Simple costumes and props were created by the class.

VII. EVALUATION

Children learned to knit.

Use of fingers and hands for knitting helped handwriting skills of the children.

A number of social and communication skills were developed through practice and presentation of plays.

VIII. FOLLOW-UP ACTIVITIES

1. Arrangements were made to give the lap robe to a wheelchair patient at the Good Samaritan Home along with the presentation of the three plays including songs.
2. Another Nursing Home heard of the performance and asked the children to perform at their home. The children gladly repeated the plays at the Brainerd Nursing Home.

IX. EVALUATION

Children learned poise and self confidence in performing before an unknown audience, e.g. Wheelchairs being wheeled through the "stage" during the performance didn't seem to bother the children.

GRADE: 2
TITLE: GEOMETRY

SUBJECT: ARITHMETIC
TEACHER: KRIS MAHLE
OSSEO PUBLIC SCHOOLS

I. RATIONALE

This topic is part of the regular curriculum, however, because of the children's interest and ability this area was expanded.

II. OBJECTIVES

- A. To encourage child to use mathematical background in developing new concepts and to develop some knowledge of and some ability in the study of geometry by deductive procedures.
- B. To discover new mathematical media.
- C. To apply geometrical theories to everyday situations and to use mathematical instruments to construct geometric figures.

III. MATERIALS

- T Hart, Walter W. Plane Geometry and Supplements. D. C. Heath and Company, 1959.
- S Spooner, George. Math Enrichment Sets, Geometry and Numeration. Harcourt, Brace, and World, Inc. 1962. (optional)

There are many sources available in one's library and should be selected to meet the needs and interest of the class.

Webster Division
McGraw-Hill Book Company
Manchester Road
Manchester, Missouri 63011

Catalogue No. 17445 and 17446 Total cost \$6.60

IV. PREREQUISITE LEARNING

Children should have a background from previous math activities.

V. ACTIVITIES

FIRST DAY

Learn definitions through discovery, e.g. point, segment, angle, etc.

SECOND DAY

Review and learn different postulates through experimenting, e.g. the short distance between two points is a straight line.

THIRD DAY

Review and apply postulates to problem solving.

FOURTH DAY

Review and learn geometrical facts by working problem solving situations together.

FIFTH DAY

Using geometrical knowledge work problems on an individual basis.

SIXTH DAY

Use Tangrams and Geometric Cubes for experimenting.

SEVENTH DAY

Children make up challenge problems for each other. Homework assignment was for each child to teach parent a new geometric concept.

EIGHTH DAY

As a review, share concepts taught to parents. Divide into groups, tour the building looking for different geometric shapes and forms.

VI. CORRECTIVE ACTIVITIES

If child did not understand the concept, individual help was then administered by the teacher, as well as by other students.

VII. ADDITIONAL ACTIVITIES

1. Invite a secondary level math teacher to teach a lesson in geometry.
2. Discuss geometrical forms in art and draw geometric pictures.
3. Field trip to study geometrical designs and forms. (downtown area)
4. Study of how geometry originated.
5. Make a dictionary of geometric terms.

VIII. EVALUATION

Evaluation is made by observing the child's ability to solve problems and demonstrate his knowledge in other subject areas.

IX. FOLLOW-UP ACTIVITIES

1. Art and design.
2. More involvement in math, e.g. algebra, solid or plane geometry.
3. History of geometry - involvement of people.
4. Study of how geometry is used in business world today. (Ex. Architecture etc.)

GRADE: 3
TITLE: GRAPHING LEAVES

SUBJECT: SCIENCE

33

TEACHER: JOANN CURRENT
GOLDEN VALLEY ENVIRON-
MENTAL SCIENCE CENTER

I. RATIONALE

This unit creates an awareness of variations in nature while developing skills in observing and recording information, and making and interpreting graphs. It may be used easily with small groups of students or with an entire class. The unit is most appealing to gifted students because of its quantitative nature.

II. OBJECTIVES

Students will be able to measure leaves and record their measurements on graphs.

III. MATERIALS

Plastic bags - 1 per student
1/4 inch graph paper - 1 sheet per student
Sprinkling bottle - 1 or 2 for class
Butcher paper or primary chart paper - large sheet
Small colored stickers - 2 colors, 500 of each color

IV. PREREQUISITE LEARNING

The students may have worked with graphs previously. However, this is a good introduction to graphing.

V. INTRODUCTORY ACTIVITY

FIRST DAY

Collect a leaf from 5 or more different kinds of trees. Show these to the students, asking them how they are alike and how they are different. Ask them if they came from one tree or many trees. Let them sort the leaves to determine how many kinds of trees are represented.

Next ask if all of the leaves from the same tree (or kind of tree) would be alike. If they think they are different, ask for ways they might be different. Ask the children how they can be sure about their answers. (The best way to find out is to collect leaves and compare them.)

VI. SEQUENCE OF ACTIVITIES

SECOND DAY - Collecting Leaves

Take the children to two kinds of trees with branches hanging low enough that they can reach the leaves. Be sure to choose trees with simple leaves such as oak, elm, maple, birch, or poplar. Let each child collect 20 to 30 leaves from one tree and choose which tree he wants to investigate. Show the children how to break off a leaf so that the stalk (petiole) remains attached to the leaf blade.

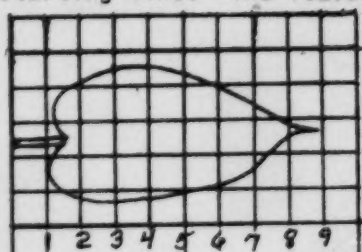
20.
GRADE 3
GRAPHING LEAVES

If each child has a plastic bag the leaves can be carried easily as they are collected. After returning to school the children should sprinkle water over their leaves, put a label bearing their name on the bag, and store the bags in a refrigerator or cool place for use the next day. A sprinkling bottle like those used for sprinkling clothes before ironing is ideal for moistening the leaves.

Provide a source book picturing leaves for deciding what kind of tree the leaves are from.

THIRD DAY - Measuring the Leaves

Using a 1/4 inch or similar graph paper the children can measure the length of their leaves by counting the number of squares spanned by the leaf. They may want to draw a starting line at one edge of the paper and number the squares from the starting line. The leaves should be measured from the base of the



This leaf counts as 8 squares in length.

stalk to the tip (see diagram). To avoid fractions a leaf must touch or pass a line in order to count that line.

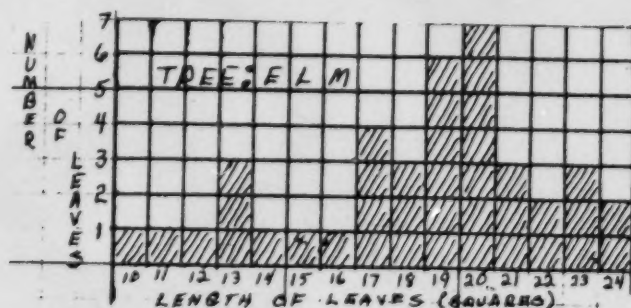
Each child should make a list recording the length of each leaf, with an outline of one of his leaves beside the list. Collect these lists for your use in preparing graph forms for the next day's activity.

VII. TEACHER PREPARATION

Note and record from the children's lists the following data:

1. The range of leaf lengths for each kind of tree.
2. The greatest number of individual leaves of any one length which occurs on a list.

From this data prepare a graph sheet which can be duplicated to be distributed to the children. If the leaves from the two kinds of trees are quite different in length you will want to make two separate forms. The graphs should resemble the sample below, except leave columns blank for students to complete.



FOURTH DAY - Making Individual Graphs

Return the lists to the students and distribute the graph forms. They can color a block on the graph above the length of the leaf for each leaf measured. The finished product will be a bar graph or histogram.

Allow the children to compare their graphs before asking: How long is an oak leaf? (or whatever kind they measured). This should lead to all sorts of answers.

Then ask: Of which length did you have the most leaves? They will probably disagree on this point as well. Tell them that they may be able to tell more about their results if they put all of their data together.

VIII. TEACHER PREPARATION

Prepare a large graph from on a large sheet of butcher paper or primary chart paper. This is an enlargement of the individual graphs and should include the length ranges for both kinds of trees. If these ranges overlap, you will want to outline two columns above each length, making a separate bar on the graph for each kind of tree. The squares of this graph do not need to be drawn in. Refer to the graph in the evaluation which includes student data.

FIFTH DAY - Compiling Data

This activity may be done throughout the day. Allow each child to place a sticker on the class graph for each leaf he measured. Provide stickers in two colors, one color for each kind of tree. Self adhesive coding dots for maps and charts can be purchased at variety stores or use squares of colored paper with tape or paste. The completed chart will resemble the one in the evaluation.

SIXTH DAY - Discussion

When the graph is completed and displayed, generate a discussion of the results. The questions below should be included in the discussion. You will, of course, substitute the names of the trees the children studied.

How do oak leaves differ in length from elm leaves? Ask them to explain this using the graph. Be certain that they note the definite patterns of the two kinds of trees on the graph.

How long are most elm leaves? How long are most oak leaves? Is this easier to determine on the class graph or on your individual graph? The children will most likely conclude that more information gives more reliable results.

What does the graph tell you about the leaf length of the trees? There is a wide variation for one kind of tree, with certain lengths being more frequent. Although they vary in leaf length, the two kinds of trees can be separated by the pattern of their leaf size on the graph.

What might cause variations in leaf length? Answers may include the age of the leaf, the amount of light it gets, or the heredity of the tree.

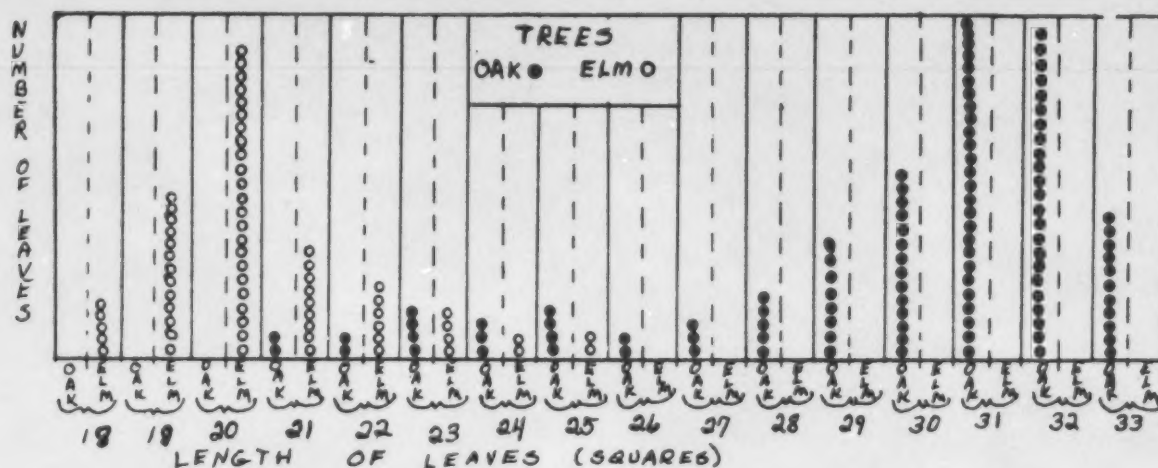
How might this study apply to you? All third graders are not the same height. This is due to age, heredity, food, etc.

IX. ADDITIONAL ACTIVITIES

The children may want to graph their own variations, by measuring their heights and graphing the information.

X. EVALUATION

Evaluate the ability of the student to organize and interpret data. Individual organization can be observed on the student's lists and individual graph. A simple interpretive evaluation can be made on day 7 using the sample below.



Students should use the graph to find answers and circle the correct choice.

1. What kinds of trees does this graph tell about?

Oak Maple Elm

2. What length are most Oak leaves?

15 squares 20 squares 31 squares

3. What length are most Elm leaves?

15 squares 20 squares 31 squares

4. Which leaf is usually longer?

Oak Maple Elm

5. Which two would be most like each other?

Oak leaf and Elm leaf Elm leaf and Elm leaf

To answer the evaluation questions the student must be able to read the graph and understand that the leaves from one kind of tree vary, but are more like each other than the leaves of another kind of tree.

XI. FOLLOW-UP ACTIVITIES

This unit is easily followed by a study of variations in time of natural rhythms. Students collect acorns from a marked plot below an oak tree, keeping records of the number found to determine the time when most fall. The occurrence of color changes in autumn leaves also occurs gradually, with a peak period, and is an excellent topic for time variation studies.

GRADE: 3

SUBJECT: ENGLISH

TITLE: ANALYZING ADS AND TESTING THE PRODUCTS

TEACHER: BETTY DALLMAN
GRANITE FALLS PUBLIC SCHOOLS

I. RATIONALE

This unit was taught to help the students become aware of some of the facets of advertising. They are confronted with this daily on TV, radio and in magazines and newspapers.

There would not have been as many activities for the average or below average students, nor as much depth to the study.

II. OBJECTIVES

1. To listen to or read advertisements carefully and decide how companies get people to try their products.
2. To understand that all products are not as great as people are led to believe.
3. To develop an awareness that the purpose of advertising is to sell the product.
4. To be able to do some critical thinking and analyzing when seeing ads.
5. To realize that producers have great competition and often must do some unique advertising to sell their products.
6. To understand that companies are large in size but the ideas and comments from the purchaser are of utmost importance to them and that many personal replies are sent back to customers.

III. MATERIALS

There were no specific materials needed other than magazines and newspapers which the children gladly furnished.

IV. PREREQUISITE LEARNING

A short unit on television was taught with specific notice of the amount of time given to advertising. Students checked different programs as to minutes in advertising and minutes left for the program and were quite amazed. This was an opening to our specific unit.

V. INTRODUCTORY ACTIVITY

To begin our unit the children found magazines and counted the number of advertisements in a magazine. Newspapers were also used.

VI. SEQUENCE OF ACTIVITIES

FIRST DAY

Motivation by questions:

- (1) Why are products advertised?
- (2) Where do you think it is best to advertise -- magazine, newspaper or on TV? Why?

Discuss and list what makes "eye-catching" ads.

Pass out 12" x 18" drawing paper and instruct students to make an ad about a product they know well, to be original, and keeping in mind that the purpose of the ad is to sell the product.

(Giving an outside assignment) Have children watch TV ads, decide on one to present to the class. (Allow 2 days before presenting).

SECOND DAY

Exhibition of ads of known products that students worked on in class the first day. Children should freely discuss the ads.

Have many magazines out. Have children pick an ad of a product they have at home, cut it out, read it carefully and analyze it; underlining any words or statements that they doubt or do not agree with. (They should be ready to show and read their ad to the class on the third day.)

THIRD DAY

Presentation of TV commercials by pupils as assigned on the first day.

Showing of cut out ads from magazines. Pupils should tell:

- (1) What the product is
- (2) Eye-catching words
- (3) Words or phrases underlined as part of the ad they doubt and why

FOURTH DAY

Discuss fourth day's lesson and any questions in relationship to it. The Assignment: *"Taking the ad, try out the product to see if it does as the ad claims it will. Be ready to share findings with the class."*

FIFTH DAY

Students tell informally about their test of the product and its comparison to the ad. If different, tell how.

Writing a plan for the next lesson. The students plan how they will make a comparison between their product and a similar product. Write the plan on paper keeping the following questions in mind:

- (1) What product of another brand is similar to mine?
- (2) Is this other product available for me to make my comparison?
- (3) What would be a good test of comparison?
- (4) What words in the ad are good test words?
(Example: In a facial tissue ad there might be words as soft, absorbent, strong.)
- (5) Could I do the comparison test at school? If so, what materials will I need? The students make this choice for the next lesson -
 - (a) Do the comparison tests at home and briefly tell results,
 - (b) Bring the materials to school and do the testing in class.
 (A hint: The blindfold test was very popular, using our senses -- for example, in the facial tissue test a student may be blindfolded and asked to feel which tissue is softer, or seeing which is stronger by measuring equal amounts of water into each, or seeing which is more absorbent by wiping up equal amounts of water.)

SIXTH DAY

Informal oral class period

Students tell of comparison tests OR

Students do some comparison testing in class with peers assisting in the testing.
(THIS WAS A "FUN" PERIOD FOR THE CLASS)

SEVENTH DAY

Setting up small groups for observations and conclusions of ads.

Meeting in small groups and helping each other make a conclusion about their product according to what was observed in test results of comparisons. (This is to be the basis of the next lesson which is writing to the company, telling of their findings. For next lesson have students bring envelope and stamp from home.)

EIGHTH DAY

Writing a Business Letter

Discuss and plan the form of business letters. Go over parts of business letter making a sample copy on the board, placing heading, inside address, greeting, body, closing and signature.

Students write their letter using the dictionary for help in spelling words of uncertainty. (Stress the reason for writing and the form just discussed.)

Find a partner and proofread letters by exchanging or if students prefer, the teacher may proofread, too.

Discuss addressing an envelope correctly. Children address envelopes including return address and correct company address which is usually found on wrapper or covering of product. Stamp, seal and send letters.

NINTH DAY *

Creativity Class Period

Be imaginative! Create a NEW product. Make an advertisement that will interest people in wanting to purchase your product NOW! Plan it out first!

- (1) What is to be my product?
- (2) How can I best sell it?
- (3) What are some interesting words to use?
- (4) How can I best show my plan on paper?
- (5) What colors should I use?
- (6) Which words should be in larger print?

12" x 18" construction paper worked well. Pass out paper and let children use choice of media - crayon, paint, chalk, oil pastels, etc., or combination of these.

VII. CORRECTIVE ACTIVITIES

Because this unit was based more on group activities rather than individual, there seemed to be no corrective activities necessary.

VIII. ADDITIONAL ACTIVITIES

- (1) Display of students' Product Creation Ads
- (2) A bulletin board made of letters received from the companies they wrote letters to -- proved to be a popular spot.
- (3) Children might pretend each is a salesman selling a product. Try selling it to another classmate.
- (4) Using the World Almanac -- students might find out how much money is spent on advertising each year.

IX. EVALUATION

Evaluation was based on the development of critical thinking about ads, unique ideas in testing products, originality in planning an ad for a new product, and expressed ideas sent to the company about the ad chosen to analyze, plus the product that was tested.

X. FOLLOW-UP ACTIVITIES

This unit could be the opening for many follow-up units.

- (1) Ways of Advertising -- This could include specific study of newspaper, direct mail advertising, television, radio, outdoor ads, catalogs, magazines, window displays, skywriting, and novelties.
- (2) The People Who Make The Ads -- Information could be gathered on copywriters, artists, media experts, and researchers.
- (3) Preparing Advertisements -- This unit could include printed ads, television and radio commercials, and placing advertisements.
- (4) History of Advertising -- The children would find it interesting to look up some early uses of advertising, the impact of printing, development of agencies and how advertising has grown. They might even bring ads from old magazine or newspapers that might be located. (Maybe in Grandmother's attic!)

GRADE: 4

SUBJECT: SCIENCE

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TITLE: CREATING A NATURE TRAIL

TEACHERS: MARGARET NELSON AND
LAVERNE LAGESON
LITCHFIELD PUBLIC SCHOOLS

I. RATIONALE

This unit has been designed to create and develop an awareness of the natural environment with which individuals interact. Provisions were made, upon student request, to "become involved with" creating and maintaining the beauty of nature. This beauty could best be created and shared through the use of a nature center, that could be shared and enjoyed by our students and all individuals in our community.

II. OBJECTIVES

COGNITIVE

1. To help students understand that physical features such as temperature, moisture interacting with soil, and water of an area produce world communities called biomes, each with its characteristic life.
2. To help students understand how the environment affects the wildlife population of an area.
3. To help students understand the value of the preservation of wilderness areas — value to the individual, to science, and to our cultural heritage.
4. To help students gain knowledge that a nature center is an educational device which can be used to teach the balance and interrelationship of nature.

AFFECTIVE

1. To help stimulate an awareness of preserving and enjoying our natural environment.
2. To help students learn to appreciate beauty in nature.
3. To develop a curiosity and awareness to share with others the beauty of our surroundings.

III. MATERIALS

Brennan, Matthew J. People and Their Environment: Teachers Guide to Conservation Education. Ferguson, 1969. 122 p. (T)

Faber, Harold, editor, The School Times. Published by the New York Times, New York, N.Y. Book and Education Division, 1229 West 43rd Street, New York, N.Y., 10036. Subscription - \$1.50 per year minimum order (15) (B)

McKane, John G. The Conservation Volunteer published by Minnesota Department of Conservation. (B)

51.
GRADE 4
CREATING A NATURE TRAIL

IV. PREREQUISITE LEARNING

Preparatory learning came by the teaching of a previous unit on ecology. In the ecology unit, with emphasis upon pollution, students became aware of the growing problem we call pollution. Students studied all forms of pollution becoming aware of and knowledgeable in these areas. Interest was heightened by having the students take a personal interest in this vast and perplexing problem.

V. INTRODUCTORY ACTIVITY

Questions were raised through discussion relating to personal interest resulting in the unit on pollution. Questions such as, "What can I do?" and "How can I get involved?" brought a paramount height of personal interest. With personal interest aroused, the students looked for ways of personal involvement. The development of a nature center was the outcome.

VI. SEQUENCE OF ACTIVITIES (3 HOUR BLOCKS OF TIME)

THEME: HOW CAN WE BECOME INVOLVED.

SESSION 1 - VISIT FROM CONSERVATIONIST

- 20 MINUTES: Set goals and objectives for the day, sharing ideas and group discussion.
- 30 MINUTES: Visit and talk by conservationist regarding information concerning plants and animals in our location. Points of conservation shared and discussed.
- 70 MINUTES: Showing of conservation and pollution filmstrips for contrast - shown by conservationist (his collection).
- 20 MINUTES: Post discussion with conservationist.
- 30 MINUTES: Individual work and evaluation.
- 10 MINUTES: Group evaluation and projection of ideas for next meeting.

SESSION 2 - VISIT SITE FOR NATURE CENTER

- 30 MINUTES: Set objectives for the day and shared ideas with group.
- 2 HRS, 30 MINUTES: Visited nature center site and measured ground area. Began rough draft of proposed nature center. Aerial photo of site was taken by conservation department. Group evaluation.

SESSION 3 - SKETCHES AND BLUEPRINTING LEADING UP TO A WORKING MODEL OF OUR PROPOSED NATURE CENTER

- 30 MINUTES: Set objectives for the day. Group sharing.
- 60 MINUTES: Individual and group work initial planning and work on blueprints. Selecting trails and plant areas in the nature center. (Blueprints based on aerial photo taken by conservation department and student observation)
- 1 HR, 10 MINUTES: Actual preparation of model nature center using imitation grass or actual sod.
- 20 MINUTES: Evaluation of work to date.

SESSION 4 - RESEARCH INTO BIOMES TO REINFORCE UNDERSTANDINGS TO COMPLETE
BLUEPRINTS AND FOR USE IN CREATING OUR NATURE CENTER

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- 30 MINUTES: Set objectives for the day. Group sharing.
60 MINUTES: Films from Bureau of Information and Education.
#29 "Life in the Grasslands of North America"
#42 "Audubon and the Birds of America"
20 MINUTES: Evaluation and discussion of films.
60 MINUTES: Individual and group research work with biomes and relation to our nature center. (Study of nature plants, etc.)
10 MINUTES: Evaluation of our work.

SESSION 5 - STUDY OF PLANTS AND ANIMALS IN OUR NATURE CENTER

- 30 MINUTES: Set objectives for the day. Group sharing.
60 MINUTES: Research work concerning animals and plants common to our location. (Group and individual projects.)
80 MINUTES: Observation of some native plants and animals in our area. (Familiarize students with kinds of plants and animals we might expect to have growing and living in our area.)
20 MINUTES: Evaluation.

SESSION 7 - FIELD TRIP TO THE RONALD WIENHOLD NATURE CENTER AT LITTLE SAUK,
MINNESOTA. THE VISIT INCLUDED IN-DEPTH OBSERVATION OF JAPANESE
STYLE GARDENS, COMMON AND UNCOMMON PLANTS, NATURE TRAILS AND OLD
TIME MUSEUM CONSISTING OF LOG CABIN, GENERAL AND A DRUG STORE.

SESSION 8 - CREATION OF OUR ROCK GARDENS AND TRANSPLANTING FLOWERS

- 20 MINUTES: Setting goals for the day and group sharing.
30 MINUTES: Discussion and reflection of our trip to Little Sauk.
120 MINUTES: Work in our Nature Center creating rock gardens. Transplanting of flowers collected on our trip and donated by students for planting in our nature center.
10 MINUTES: Evaluation of our work to date.

SESSION 9 - CONTINUED SEARCH FOR PLANTS, TREES WILD TO THEIR AREA, OR THOSE TO
BE IMPORTED, MADE READY FOR TRANSPLANTING IN THE FALL.

VII. ADDITIONAL ACTIVITIES

Our curriculum for the year has resulted from student desire. They have set the standards and decided on the activities to be included. This is an on-going project and our additional activities would be whatever children suggested which is not included in the list of activities already mentioned.

VIII. EVALUATION

Observation of the influence these students have had on other people:

- PARENTS: They notice increased desire and awareness by students concerning our nature center. An increased interest rate was also noticed.
STUDENTS: Influence had an impact on other students. These students were offering to donate their trees from Arbor Day, as well as contribute their time to help.
ADULTS: One adult's reaction was to our unit on the nature center, "best idea I ever heard of." Adults wanted to contribute money to help in the establishing of our nature center to help buy trees, plants and materials.

IX. FOLLOW-UP ACTIVITIES.

Continued work and study in the nature center. Provide for the continuation of the nature center with new groups of students.

GRADE: 4

SUBJECT: READING

TITLE: GETTING TO KNOW ALL ABOUT ME.
 WHO AM I? WHO AM I LIKE?
 WHAT WILL I BE?

TEACHER: MARGARET NELSON
 LITCHFIELD PUBLIC SCHOOLS

I. RATIONALE

This unit was taught to help students realize that one must have a good foundation, sense of values, a realistic view of himself, and that it is never too early to realistically set their goals high with no undue pressure to reach them. Each person is an individual and that now famous people were once students like themselves with weaknesses as well as virtues. Studying biographies satisfies the natural need for hero worship and writing one's own biography gives the natural need for identification.

II. OBJECTIVES

- A. TO HELP STUDENT TO UNDERSTAND, ACCEPT, AND APPRECIATE ALL INDIVIDUALS, AND TO REALIZE HE HAS A DUTY TO USE HIS ABILITY WELL FOR THE BENEFIT OF MANKIND.
- B. TO IDENTIFY WITH SOME FAMOUS PERSON WHO HAS LEARNED TO BE SELF-STARTING, SELF-DIRECTING, AND SELF-RELIANT TO A HIGH DEGREE.
- C. TO DEVELOP EFFICIENT STUDY HABITS AND DESIRABLE ATTITUDES TOWARD STUDY SO AS TO WORK UP TO HIS POTENTIAL.

III. MATERIALS

Allen, James, As A Man Thinketh. Hallmark, 1968. \$2.50. 61 p. (T)

Bartlett, John, Familiar Quotations. Little, Brown and Company, 1955. 1614 p. (B)

Davidson, Mickie. Helen Keller's Teacher. Scholastic Book Services. 1965. 154 p. (B)

Heller, Mary Jo and Dorothy Price. Consider The Lilies. Hallmark, 1967. \$2.50 61 p. (T)

Kelen, Emery. Proverbs of Many Nations. Lothrop, Lee and Shepart Company, Inc., N.Y. 1966. 63 p. (B)

Kopplin, Dorothea S. Something To Live By. Doubleday, 1945. 190 p. (B)

Lowe, Alfred H. Start Where You Are. Harper and Brothers, 1950. 179 p. \$2.00. (T)

Marshall, Helen Lowrie. Moments of Awareness. Hallmark, 1968. \$2.50. 61 p. (T)

Reit, Ann. The Golden Book of Quotations. Golden Press, 1964. 174 p. (B)

RADIO

Minnesota School of the Air. KUOM. General Extension Division, University of Minnesota. "Let's Write". p. 77. \$2.58. (T)

GAMES

The Game of Life. Milton Bradley Company

TAPE

"Even as You and I". \$8.50.

IV. PREREQUISITE LEARNING

Read the story, Helen Keller's Teacher, to the class. This also coincided with a unit on Famous People in our Lippincott Reader.

V. INTRODUCTORY ACTIVITY

A discussion of Helen Keller's Teacher followed, centering on what might have happened if Helen had received no discipline. The class acted out ways of communicating and playing Helen. Too often we look and do not see and another game was played. Heads down, one person leaves the room. Heads up and the class describes that person and the description written on the board. The child returns and the list checked with quite revealing results.

VI. SEQUENCE OF ACTIVITIES

1ST DAY

The pupils drew their own pictures using mirrors they had brought from home. These were placed on the bulletin board. The children then discussed who we look like, heredity, what heredity is, how much we know about our family, why we are different, and individuality. They decide to make a family tree going back as far as possible and start an autobiography. Talk of surgery experiences led to the discussion of "what's inside of me".

2ND DAY

Resource Person: Dr. David Allison.

Dr. Allison brought his "little black bag" and models of the heart, hand, foot, ear, eye, and leg.

He talked about human development, the work of a doctor, and the care of bodies including effects of abuse e.g. drugs and narcotics. The children used the instruments to listen to their hearts, take blood pressure, note the retina and tiny blood vessels of the eyes. See the eardrum and an X-ray of a broken bone. He answered the children's many inquiries and left the models for our class to use.

3RD DAY

Used decoral paper from 36" rolls, worked in pairs, and drew around partner's body so that each child had a life-size outline of his own body. Each child added what he liked by using science books. Some added all the parts to the circulatory system and others made overlays of the digestive system. These were folded and put into their autobiography booklets. Some students took time outside the class period to complete theirs.

4TH DAY

Discussion on progress of family tree and biographies, the need for drawing illustrations of various incidents in their lives, of snapshots and of souvenirs. Research was done on why his name was given, what it means, etc. and an essay was written, "I (do or do not) think my name fits me because _____".

A survey was taken, "Do you think my name fits me?" A graph or illustration showing percentage of yes, percentage of no, and any limitations of survey was made by each student.

5TH DAY

Discuss survey, students' strengths and weaknesses, and following poem:

"We let down our hems
And shorten our hair
Put on gay new ways
And a new grown-up air.
But sometimes in the dark
When there's no one to hear,
We talk to the person
That we were last year."

Letters were written to the person they were last year, taking a personal inventory of own gains and defeats. Mail is personal and was not shared unless desired.

6TH DAY

Resource Person: Mrs. Dorothea Kipplin, author of Something To Live By.

Mrs. Kipplin gave the students hints on writing. e.g. keep a pad with you always - when you get a thought, write it down -- it will never return in the original. This same thought was given by poet Robert Caldwell in an interview and by Maud Hart Lovelace, who sent advice on writing to one student.

7TH DAY

A discussion of the book review and preface of Mrs. Kipplin's book. Most expressed desire to own her book so they were made available. A discussion of Mrs. Kipplin's book lead into life as a garden and that we grow by our environment and nutrients.

Students used previously drawn face from the bulletin board, and make individual petals they'd like to see on their flowers. The roots are the feeders and the stem is the individual.



These big flowers were placed around the wall under the heading:

"How Does Your Garden Grow?"

8TH DAY

Share proverbs. Are used the world over, only said in a different way. Make a picture of your thoughts or own proverb.

9TH DAY

Use simulation games of life and careers to learn about the world of wonderful opportunities.

10TH DAY

Discussion of "Heroes - Yesterday, Today, Tomorrow -- Could This Be You?" on bulletin board. Pictures of some heroes of yesterday and today - discuss contributions and dates.

Make a time line. Use group or individual research - make an illustration for a famous person placing it in the proper place on the time line. Add synonyms for the word famous.

FAMOUS PEOPLE

1500 1550 1600 1650 1700 1750 1800 1850 1900 1950

Wire stretched
across the room.

string

Illustration of
famous person.



11TH DAY

Theme: "More To Me Than Flesh."

Discuss what makes a person great by relating to great people and their philosophy. Choose some great person and write to him asking his philosophy of life and the advice he'd give a young person today. Know why this person is great and why you chose him. Use daily newspapers, magazines, Who's Who, Almanac, or any source.

VII. ADDITIONAL ACTIVITIES

More mathematical activities were added such as measuring baby shoes and present shoes, height and weight at birth and comparing them with the present to determine growth, average growth per year, predicted height.

In studying heritages, samples of food, clothing, etc., could be included along with demonstrations of native arts, dances, etc., of ancestral country.

A mathematical survey of the local population to tabulate percentage from foreign countries could be conducted.

Bring in and interview more famous people from other walks of life. It is advised that copies of all replies to each child's letter be made.

VIII. EVALUATION

On a one-to-one basis, a quiet talk on evaluation as they see it was very beneficial.

The autobiographies were outstanding. Several students are continuing to add to them.

Research on family trees brought a togetherness to some families. Several students uncovered their relationship to "Mary, Queen of Scots", the Hershey candy clan, and many more.

Several replies were outstanding and some now are priceless possessions, e.g., personal letter and autographed picture of Edward Kennedy, and a letter and autographed picture from General Dwight Eisenhower which was received two weeks before his death. Two typical excerpts are as follows: *"I can tell you that very early in life I decided that there was much good to be done in the world and perhaps I could do some of it."* Rev. Theodore M. Hesburgh, C.S.C. President, University of Notre Dame; and *"I have always felt that the soundest advice that one can give a young person is that he should develop a sense of responsibility. He must realize that he has a responsibility not only to himself, but also to the people around him and to the work that he is performing. In addition he must be proud of what he is doing so that this will stimulate him to give of his best at all times."* Christian Barnard, M.D. Union of South Africa.

IX. FOLLOW-UP ACTIVITIES

A unit on social problems and prejudices, their causes and possible solutions, beginning with a series of excellent slides and records on prejudice was appropriate to follow this unit and served to test the students' growth in human relations.

I. RATIONALE

- A. Subject matter unlimited.
- B. The Science of Ethology is a relatively new science as we know it today.
- C. This unit moves the child from the overstudied taxonomy and anatomy of animals to exciting behavioral concepts that deal with the question "Why?" an animal acts the way he does.
- D. This information is not readily found in texts.
- E. Average students are not usually ready for the abstract concepts and terminology which accompany this study.
- F. Gifted Students can adapt more easily to a Science Lab situation which requires a minimum of confusion and a maximum of understanding and attention span.

II. OBJECTIVES

- A. To give the children insights into the roots of animal behavior to help them understand more completely not only animals but man himself.
- B. Reconfirm the concept that much of real Science is still Theory and is constantly changing.
- C. To teach the values of close observation and accurate study.

III. MATERIALS

- A. Books for study.
 Ardrey, Robert, African Genesis, Delta Books, Dell, N.Y.
 1961. Paperback: \$2.50 (T)
 Ardrey, Robert, Territorial Imperative, Delta Books, Dell, N.Y.
 1966. Paperback: \$2.50 (T)
 Silvan, James Raising Laboratory Animals, American Museum Science Books,
 1966. Paperback: \$1.45. (S)
 Lorenz, Konrad, Evolution and the Modification of Behavior, Phoenix Books,
 University of Chicago Press, Chicago. 1965. (T)
 Timbergen, Niko, Animal Behavior, Life Nature Library, Time-Life Books, N.Y.
 1965. (S)
 Broadhurst, P.L., The Science of Animal Behavior, Pelican Edition, Penguin Books,
 Baltimore, 1963. (B)
- B. Reference Materials (Student Materials)
 NATIONAL GEOGRAPHIC MAGAZINE, NATIONAL GEOGRAPHIC SCHOOL
 BULLETIN, AUDOBON MAGAZINE, NATIONAL WILDLIFE MAGAZINE, RANGER RICK'S NATURE
 MAGAZINE.
- C. Movies
 WALT DISNEY'S "Beaver Valley"
 "Bear Country"
 "White Wilderness"
 National Geographic Special on "Animal Behavior". Shown on October 14, 1969
 CBS. Write for information.
- D. Comic Strip
 "MARK TRAIL" BY ED DODD AND TOM HILL. (BULLETIN BOARDS)

LOCAL

Dr. McKinney (Ethologist)
17th and University Ave.
University of Minnesota
Minneapolis, Minnesota 55455

Bureau of Sport Fisheries and Wildlife
1006 West Lake Street
Minneapolis, Minnesota 55408

Mr. John Fletcher, Director (very helpful)
Como Park Zoo
St. Paul, Minnesota 55103

Mrs. Trudy Latchaw
823 Division Avenue
White Bear Lake, Minnesota 55110

Mrs. Edith Heller, Librarian
James Ford Bell Natural Historican Museum
University of Minnesota
Minneapolis, Minnesota 55455

Nature Center
Route 1 Box 690
Excelsior, Minnesota 55331

Minneapolis Bird Club
P.O. Box 566
Minneapolis, Minnesota 55440

NATIONAL AND INTERNATIONAL

Dr. Professor H. Hediger
Zurich Zoo
Zurich, Switzerland

Smithsonian Institute
Distribution Section
Editorial and Publishing Division
Washington, D.C. 20560

The Conservation Foundation
1250 Connecticut Ave. N.W.
Washington, D.C. 20036

Canadian Wildlife Service
Dept. of Indian Affairs and Northern Development
Room 1266a 400 Laurier Ave. W.
Ottawa, Ontario, Canada

National Wildlife Federation
Educational Servicing
1412 6th St. N.W.
Washington, D.C. 20036

IV. PREREQUISITE LEARNING

Children bring a lot of information to this subject area.

V. INTRODUCTORY ACTIVITY

Introduce the word "ethology" and the area of study it implies. Schedule a one hour library session, secure a stack of National Geographic Magazines or the like, for a central table. Ask the children to find an article on an animal they consider interesting and read about it to prepare themselves for a discussion to follow.

VI. SEQUENCE OF ACTIVITIES

SESSION 1: Discussion - One half hour to one hour. Plan a round table discussion of the animals researched. Explore any behavioral comments made by the children. Encourage questions about why an animal does something, rather than questions about physical appearance. i.e. Why does a penguin lay its eggs on its feet? (Many possible responses.)

SESSION 2: Discussion - one half hour to one hour. Topic: Animal Needs. Are there some things that every animal needs to do?--Have children make a large chart of animal needs that they all agree upon. (Food-gathering, Reproduction, Protection, Rest, Territory, etc.) Discuss the differences and similarities between various animal types. Question: Do humans have the same needs? (Filmstrips and transparencies may be beneficial here to suit the teacher.)

• GRADE: 6

SUBJECT: SCIENCE - PSYCHOLOGY

TITLE: LEARNING THEORY

TEACHER: ROGER EVANS, INSTRUCTIONAL
ASSISTANT
ROBBINSDALE PUBLIC SCHOOLS

I. RATIONALE

This lesson developed out of student interest. While reflecting upon past years of elementary school, a sixth grader expressed concern about how children learn. He infected others with his enthusiasm to gain some evidence to support his hypothesis by teaching grade two and three students. I would direct average and below average students to examine how they themselves learn by accomplishing tasks in different ways and evaluating which was most satisfying.

II. OBJECTIVES

To formulate values of learning techniques. To discipline oneself to accomplishing an objective. To recognize variables from non-variables. To ask productive questions both orally and in evaluative instruments. To follow through a self-designed experiment to conclusions based on evidence gathered.

III. MATERIALS (THE MATERIAL NEEDS VARY WITH THE EXPERIMENT DESIGNED)

EXPERIMENT 1

Lieberman, Joseph *Mayan Numerals*
McGraw - Hill, 1963. 30 p.

Math Activities

Grade 6 students wrote worksheets and tests, made games and transparencies for the experiment.

EXPERIMENT 2

Brandwein, Paul F. *Concepts in Science 3*, Harcourt Brace, 1966, 314 p.

Science Investigations, Grade 6 students used the investigations suggested in *Concepts in Science 3*, on energy.

Materials were all found in the school or are readily available elsewhere.

IV. PREREQUISITE LEARNING

EXPERIMENT 1

Review *Mayan Numerals*
Learn to use the overhead projector.

EXPERIMENT 2

Do the science investigations to see that they work.
Review the science content selected for the experiment.

V. INTRODUCTORY ACTIVITY

The initiator of the study located three other grade six students to join him. Preliminary discussion pinpointed the students' concerns. Attention was focused upon a statement of the problem.

Second grade children can learn better in an atmosphere of free discussion than in an atmosphere of no free discussion.

Third grade children can learn science skills better by "doing experiments" than by reading and discussing.

The students designed the experiment. The two experiments were not conducted simultaneously nor by all the same grade six students.

The four grade six "student teachers" selected four of six classrooms from which to draw children for each of the experiments. The "student teachers" observed the classroom teachers to determine which four were most alike in working with children. Each teacher selected was then asked to select: five students of average achievement for experiment; five students with a 3.8 to 4.3 grade equivalent on the science subtest of the Stanford Achievement Test which was given earlier in the year.

The "student teachers" met several times previous to meeting with the children to plan lesson, prepare materials, try teaching techniques on a trial group of children, and write evaluative instruments. Each of two "student teachers" in both experiments met with a control group. The others handled the experimental groups.

Preliminary discussion focused on the variables. The "student teachers" designed most of the problems and as expected, encountered some others (section VII). These introductory activities, discussion and guidance consumed about five hours of meeting time over two weeks prior to each experiment.

VI. SEQUENCE OF ACTIVITIES

The control and experimental children met for five or six meetings of thirty minutes within a two week period. Time periods were scheduled in advance with the classroom teacher.

EXPERIMENT 1		EXPERIMENT 2
<u>1ST DAY</u> 30 minutes	Teach counting 1 - 10 Distribute conversion sheet	Make an electromagnet. What will be picked up from a collection of materials? p. 61
30 minutes	Meet with "student teachers" discuss problems, adjustments and good points	Control - Read p. 59 - 68
<u>2ND DAY</u> 30 minutes	Review counting 1 - 10 Worksheets	Make a metal & paper pinwheel - use with water, candle and fan. Vary the pitch of blades. p.34, p. 44, and p. 48
15 minutes	Meet and discuss experiences of "student teachers"	Control - Read p. 31 - 52
<u>3RD DAY</u> 30 minutes	Teach counting 11 - 15 Review simple addition Teach equality Worksheet	Use a magnifying glass to burn paper - out doors on sunny day. p. 3 Control - Read p. 1 - 6

EXPERIMENT 1

EXPERIMENT 2

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4TH DAY 30 minutes	Review Counting 11 - 15 Teach counting 16 - 20 Teach subtraction	Separate mixtures - sand and salt - Iron filings and sand. p. 135 and p. 137
5TH DAY 30 minutes	Review Play Bingo with Mayan Numerals Use review worksheet	Control - Read p. 134 - 140 Test Same for both, control and experimental group.
6TH DAY 30 minutes	Test - Same for both groups.	
7TH DAY 60 minutes	The "student teachers" corrected their tests, compiled their results and eagerly drew conclusions. Discuss recommendations to teachers as a result of findings.	
8TH DAY 30 minutes	"Student teachers" plan report to teachers at a staff meeting.	
9TH DAY 5 - 10 minutes	Report to teaching staff.	

VII. CORRECTIVE ACTIVITIES

The experiments were designed and carried out by the students. The teacher's role is one of guidance. This is best done through questioning which stimulates thought. Rarely students asked the teacher's opinion. Decisions were theirs to make.

During the experiment, the teacher observed the students regularly, usually out of sight. Students observed one another. Corrections and suggestions were based on experience and observation. Problems arose regarding: moving too slowly or too swiftly; vocabulary difficulty; discipline; incorrect information; being too friendly.

VIII. ADDITIONAL ACTIVITIES

Pre-testing the children would make the conclusions drawn more valid. However, the outcome of the experiment is far less important than the fact that a group of students conducted research based on their own design.

IX. EVALUATION

This type of activity is worthwhile particularly because of the emphasis on evaluation throughout the experiment. These items were written with the problem and material taught in mind.

The accomplishments of the student teachers were evaluated subjectively through discussion.

The information gathered and conclusions drawn together with recommendations were made to a full teacher staff meeting. Each "student teacher" also discussed the project in his homeroom.

X. FOLLOW-UP ACTIVITIES

Further experiments can be designed. Emphasis should be on isolation of variables in the design and evaluating for a change in student behavior.

For example....

A grade four student can increase his rate of computation of a specific skill faster through games than through worksheet drill. Use flash cards, Holt, Rinehart card games, or 3M's Quinto.

A grade six student can conceptualize supply and demand better through a simulation game than he can through reading. Use Academic Games Associates, Inc. - Trade and Develop, 1969, an economics game for upper elementary and junior high school.

Conduct experiments without the human element. Then contrast the difficulties.

SESSION 3: Observation - one half hour to one hour. Question: What happens to animals if they cannot fulfill one of their needs? (Usually, they can't survive.) Secure a green turtle from children or pet shop. Have children sit around a table and place the turtle on its back in the center of the table. Ask them to observe the way he turns over. Before they talk have them write every movement down they think they think they saw. Then have them share their writings. Ask: "Did you all see the same thing," or "Did you all write the same thing down?" "If not then who is right?" (Quite a discussion may ensue). Try it again! Encourage children to make other observations at home or in the woods.

SESSION 4: Discussion and Films: Adaptation vs. Extinction. Show a film or two on extinct or endangered animals. (These are in abundant supply.)

Discuss some of the changes in an animals environment that cause extinction. (May also discuss the role of mutation in adaptation and extinction if children are prepared.) You may introduce the idea that evolution is a process of adaptation or extinction.

Question: "What would people be like today if some of the early men had not gone extinct or changed?" "What if the dinosaurs hadn't gone extinct?"

SESSION 5: Field Trip 1. Visit a zoo, or make arrangements to visit an ethologist at a neighboring university. (Mr. Fletcher, Director of Como Park Zoo is most helpful, and will demonstrate whatever you want to emphasize.) Discuss the problems of making accurate observations of animals in captivity.

SESSION 6: Discussion, films, and letter writing. 1 hour. 30 minutes: Discuss: What is instinct in animals, and how is it different from learning in animals? Have student define these two words to their satisfaction. Bring in examples of migration instincts, and imprinting in animals. Discuss some of man's instincts. For close of unit but continued interest have children correspond with an individual or agency in a field they are interested in for a satisfying and a personal enjoyment to the student. You can keep a running bulletin board of responses from places all over the world.

VII. ADDITIONAL ACTIVITIES

This subject area is so broad that any word or aspect may be expanded upon according to the experiences of the teacher. For instance, Migration of Animals may be a whole unit in itself.

VIII. EVALUATION

The mind expansion and abstractions this unit involves are difficult to measure objectively. The administration may wish to place a note in the child's file that this unit has been accomplished. Parental notes and comments about enthusiasm at home may be valuable to the teacher.

IX. FOLLOW-UP ACTIVITIES

A unit on learned behavior or the learning process might be logical. Also a unit on Man and his Origins would be appropriate.

GRADE: 6

TITLE: ORIGINAL RESEARCH

SUBJECT: LANGUAGE ARTS
SOCIAL SCIENCE

TEACHER: ROGER OMAN
DULUTH PUBLIC SCHOOLS

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I. RATIONALE

By the intermediate grades, most students have done research where they look up information in encyclopedias or other sources. This original project allows students to select a topic of his choice and present information which has not previously been published.

II. OBJECTIVES

1. To learn what research is, why it is done, and how to use basic research skills.
2. To become aware of how a student's classmates behave.

III. MATERIALS

Torrance, E. Paul and Myers, R.E., "Teaching Gifted Elementary Pupils How to Do Research" Perceptive Publishing Company, Minneapolis, 1962.

IV. INTRODUCTORY ACTIVITY

Discuss what occupations use research to make their products better, and discuss why people do research. There are so many things we don't know that we want and need to know. Man has always been curious about the world around him.

Discuss what research is. It is an important process for carrying out the scientific method and applies every possible test to get at the truth. Emphasis is on testing rather than proving and data are carefully recorded and reported. Research workers must study hard and be willing to spend long hours searching for truth.

V. SEQUENCE OF ACTIVITIES

This unit should be spread over at least two weeks.

FIRST DAY

Allow students to each choose a type of behavior on which they would like to survey their classmates. Examples: favorite animals, types of music, colors, singers, cars, travel, magazines, TV programs, pastimes, types of books, chores at home, after-school activities, hobbies, types of math, sports, pets, records, dances, newspaper reading, friends, subjects in school, vocations, study habits, athletes, vacations, science topics, musical instruments, etc. Have students write a survey questionnaire on their topics. After the teacher and/or the class have added additional choices, the students may recopy it with a pen or typewriter onto a ditto master for duplication and distribution to the whole class.

Example of questionnaire

RESEARCH PROJECT ON MUSICAL TASTES OF 6TH GRADERS - by John Doe

Please answer the following questions honestly and completely.
Do not sign your name. The results will be used in a research project I'm writing.

44.
GRADE 6
ORIGINAL RESEARCH

1. Are you a boy ____ or girl ____?
2. Check all the kinds of music to which you like to listen on radio, TV, and record players. (list kinds)
3. What types of instruments can you play?
4. Do you usually enjoy singing with other students? Yes ____ No ____

SECOND DAY

Pass out the duplicated survey sheets to the class for their honest and complete responses.

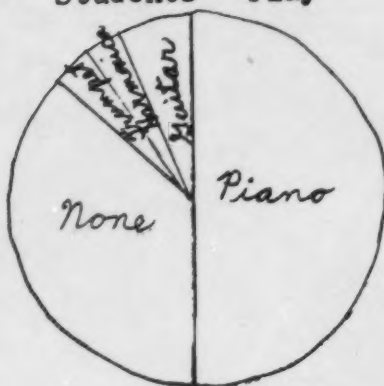
After collecting the completed surveys, allow students to tabulate the total responses on a blank survey sheet.

THIRD - FIFTH DAY

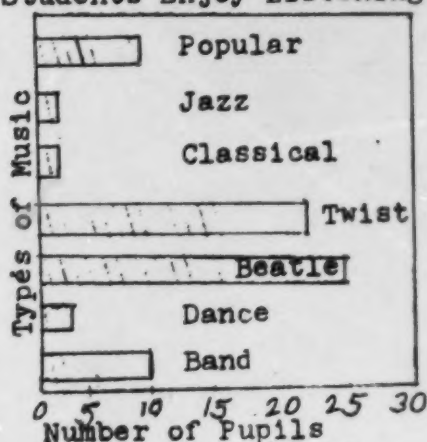
Teach the children how to show their tabulated responses on circle, bar, line, and picture graphs. Students should make 1-3 graphs of each kind -- only one graph on a page.

RESULTS OF RESEARCH PROJECT ON MUSICAL TASTES

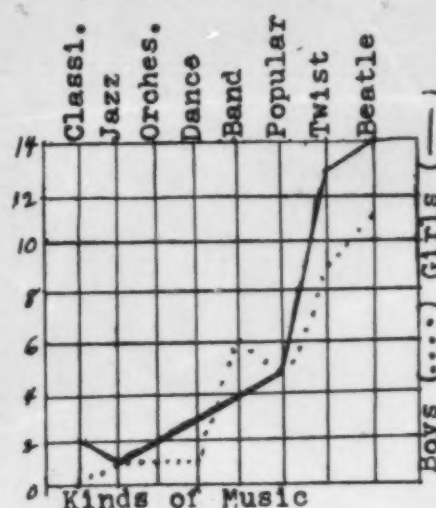
Instruments Which Students Play



Kinds of Music to Which Students Enjoy Listening



Boys Versus Girls Tastes in Music



SIXTH DAY

Teach students to find the mean, median, and mode of the number of responses that were checked. Then help the students interpret the results and draw some conclusions from the mean, median, and mode.

Mean
(Add and divide)
(Find average)

Median
(Middle ranked person)

Mode
(Choice of largest
number of people)

Present the scientific method of doing research and compare the steps with this project. Steps Include:

- A. Identify and state the problem (What do we want to find?)
- B. Make many hypotheses or guesses using available facts.
(We made our guesses for use on a survey questionnaire.)
- C. Collect, organize, and analyze the data.
- D. Draw some conclusions from your results.
- E. Verify, reject, or change the guesses on the basis of additional information.
- F. Tell others of your results. (Written research report)

A student's written research booklet might include the following items:

1. Front Cover - clever title, student's name, nicely designed.
2. Title Page - Name of project, student's name, school, grade, teacher's name, and maybe a picture. Place "copyright" date on the reverse side.
3. Table of Contents
4. Purpose of Study - Why did you perform the experiment? What was it that you didn't know? What were you trying to find out?
5. Procedures - What was done? Who performed the experiment? What materials did they use? Who were the subjects? How many were there? What did the experimenter do and what did the subjects do? These things should be described in such a way that someone else could perform the experiment and obtain similar results.
6. Sample Questionnaire Containing Tabulated Results - Students may wish to include one questionnaire containing boys' results and one containing girls' results.
7. Graphs Showing Results - Include at least one each of a bar graph, circle graph, picture graph, and line graph.
8. Mean, Median, and Mode
9. Conclusions - What did you find out? What does it all add up to? What can you be reasonably certain about? How certain can you be? After studying your tabulated results, your graphs, and your mean, median, and mode, list as many conclusions as you can.

VI. CORRECTIVE ACTIVITIES

Correct rough drafts of graphs and other pages before the students are allowed to make final copies.

Points to emphasize are:

- A. Graphs should be colorful (colored pencils are best), large (one graph per page and neat (use a ruler).
- B. Graphs should have a descriptive title, labels on the horizontal and vertical axes, and show accurate information which can be verified by the tabulation of results.
- C. Write only on one side of wide lined paper in ink for final copy. Use one inch margins on both edges. Number each page of booklet.
- D. Include pictures or drawings throughout your booklet to make it more interesting to read.

VII. ADDITIONAL ACTIVITIES

Each child should share orally with his classmates what he learned from his research project. The oral report should have three parts: beginning (interesting topic sentence telling what was researched), middle (interesting results that you noted), and an ending (concluding statement). Brief notes may be used but reports should not be read.

VIII. EVALUATION

I find that most students would prefer a couple of written sentences from the teacher complimenting the student's good points rather than just a letter grade.

IX. FOLLOW-UP ACTIVITIES --DIFFERENT WAYS OF DOING RESEARCH

1. The above project was "Descriptive Research."

This research describes what is. It is a way of learning the results of experiments conducted by nature and society. This research is concerned with how a person, group, or thing behaves in the present. It often involves comparing or contrasting two people or things e.g. boys versus girls.

2. Students may wish to try "Historical Research" (Historiography).

This research describes what was. It is a way of learning the results of experiments conducted by time. It involves the study of events of our past for purposes that might prove helpful in understanding the present and future. This research is concerned with the change or development of individuals, practices, movements, or ideas.

3. Students may wish to try "Experimental Research."

This research describes what will be when certain factors are carefully controlled. It tries to find cause-effect relationships. It involves experiments both in the laboratory and in the field. It tries to learn the effects of possible changes.

GRADE: 6

SUBJECT: SOCIAL STUDIES

TITLE: QUALITIES OF LEADERSHIP THROUGH A STUDY OF
SELECTED BIOGRAPHIESTEACHER: ROGER OMAN
DULUTH PUBLIC SCHOOLS

I. RATIONALE

Units of each of the Old World Cultures has been a traditional approach for the general student. This unit may be used as a new approach to the material to be covered for gifted students by selected leaders from a particular culture or from the entire historical span normally covered.

Probably in no other time in history has there been such an urgent need for effective leaders. Mankind has developed the physical means to practically annihilate itself. What course history will take in the next hundred years depends in large measure upon the quality of our leadership.

II. OBJECTIVES

All students should find attributes of good leadership. Through discussion and evaluation they should understand that the culture under which an individual is reared and the social groups to which he belongs exert great influence on his ways of perceiving, thinking, feeling, and acting.

Major concepts should include: (1) A leader is not content to do more of the same thing. He wants most of all to do different things; (2) Leadership requires many different types of work -- dreaming, laboring, etc. Leaders are not lazy people. Leadership is demanding and requires energy and output; (3) A leader gains his position partly because he senses the needs of a group and seems to have the ability to meet those needs; (4) Through all time and in all regions of the world, man has worked to meet common basic needs and to satisfy common human desires and aspirations; (5) A leader listens to other people and attempts to understand how they feel about problems (empathy); (6) Leadership implies communication with other people; (7) Leadership implies social responsibility if it is to contribute to the common good.

III. MATERIALS

Select leaders to be studied based on materials, texts, biographies, etc., available to your school or system.

IV. PREREQUISITE LEARNING

Use of card catalogue and an understanding of the difference between biographical fiction and fictionalized biography.

V. INTRODUCTORY ACTIVITY

Think of your own neighborhood, your parents, your friends and their parents. Can you see evidence of leadership within any of these persons? If so, how are they leaders? What kind of experience do these persons have that set them apart as leaders? (Each give a 1 to 2 minute oral report). They should not name names.

VI. SEQUENCE OF ACTIVITIES

FIRST DAY

Introduction of unit. . Introductory Activity

SECOND DAY

Discussion: What makes a good leader?

- a. What type of personality do you need to be a leader?
- b. What values or beliefs should you hold about people working together?
- c. What skills do you need to have?
- d. What things should you not do or be?
- e. Are leaders different from other members of a group?

THIRD DAY

Discussion: Do different situations require different types of leaders?

- a. Can one person be a leader in all situations?
- b. If you are a good team captain are you necessarily the best project leader?

FOURTH DAY

Discussion: How can you develop your own leadership ability?

- a. Can you develop any weak parts of your personality?
- b. How can you become more responsible?
- c. Can you get ample opportunity to practice leadership?

FIFTH DAY

Discussion: What do you need to become a good group member?

- a. Should a leader ever follow?
- b. What if you, as a group member, feel you can do the job better than the leader?

SIXTH THROUGH EIGHTH DAYS

The class periods should be spent by the students in getting background information of leaders selected from a prepared list.

NINTH AND TENTH DAYS

Orally discuss these leaders by using the above questions as a test of their leadership qualities and characteristics.

ELEVENTH THROUGH FIFTEENTH DAYS

The following experiences in discussion, writing, and thinking should stimulate the thought processes of the students. You may use any, all, give to each or assign several to committees. No specific time limit has been set.

1. Norswe at one time had been a world power. Gradually this power declined as a result of wars with neighboring countries. The once powerful country of Norswe had been defeated by her powerful neighbor Finruss. As a result of this defeat, many people were homeless and starving. Unemployment was at its peak with industrial and agricultural production almost at a standstill. King Lief I, a powerful ruler, died soon after his country's defeat. The rulers and "leaders" which followed King Lief were weak and ineffective. The people were dissatisfied and looked forward to the time when a ruler would lead Norswe to the once high position of world leadership it had known in the past.

- a. List the qualities of leadership which you think are needed to lead Norswe.
 - b. Think of leaders you have studied. List two leaders whom you think could effectively lead that country.
 - c. What problems would the leader have to solve in order to bring Norswe back to its position of world leadership?
2. Which would you prefer -- the life of a leader in the 1700's, today, or in the unknown future. Write your choice and give reasons to defend it.
 3. List all the reasons you can think of that caused men to become leaders.
 4. Write an account of your feelings concerning one of the following?
Do you think Napoleon Bonaparte would have been a good general in the current Indo-China war?
Do you think Peter the Great of Russia would have been a successful ruler in following Alexander the Great as head of the Persian Empire?
 5. Group the class into committees of 3 persons each. Allow each committee to draw the name of a leader. Provide this exercise? Pretend that your town is erecting a statue to _____. What words would you put on this statue to tell why we honor this person? (use names from your selected leader list)
 6. Write a one-page story about one of the leaders we have studied who might at one time have been lonely. Choose one of these phrases and build a story around it so it pertains to the person you chose? empty and quiet, aching heart, surrounded by stillness, homeless, steady downpour of rain, longing for the sight of someone, sad and anxious eyes, shut in by towering trees, lengthening shadows.
 7. To stimulate ideational fluency, have children list, within a short period of time, as many answers as they can to the following situations:
 - a. King Ferdinand, Queen Isabella, and Columbus are having a meeting. What reasons do you think Columbus gave for wanting to make a voyage of exploration?
 8. Study cartoons on the editorial pages of newspapers. Draw cartoons depicting some of the leaders studied as they and some of their actions may have appeared to the people of their time. Provide captions.

VII. CORRECTIVE ACTIVITIES

Most of the work requires no corrective activities. However, students should be encouraged to find examples of men and women who do not fit a "mold" in that they possess what are usually considered excellent leadership qualities but who have made a significant contribution to mankind because they did possess some of the qualities.

VIII. ADDITIONAL ACTIVITIES

This unit can be made as long and as continuous as you want. It might be interesting to read about leaders in each of the following areas: music, art, philosophy, science, literature, transportation, communication, politics, military, exploration.

IX. EVALUATION

Evidences of leadership qualities should be noticed and capitalized upon in the classroom. Opportunities should be provided for students to practice leading. Buzz sessions about some particular leadership assignment and the way it was carried out can be of immediate help the students. The following exercises require students to think about leaders and their qualities and responsibilities.

Write down all the things that the word "leadership" brings to your mind. (Allow 5-6 minutes). Be prepared to present your three best associations to the class and give reasons for your choices.

From the list of qualities below, select the five that seem the most important attributes of the leader you choose to tell about. Following the oral presentation your classmates may not agree with your choices. Be ready to defend your selection.

love of freedom	generosity	determination	honesty
love of adventure	courage	cheerfulness	skill in crafts
love of knowledge	endurance	patience	
a carefree nature	good health	friendliness	

Write as many sentences about leaders and leadership as you can think of following the formula below.

W _____ s _____ l _____ c _____.

Examples:

Why should leaders care? We study leaders carefully. Will strong leaders continue?
When should leadership change? Why support lame choices?

The following "scrambled words" are really words having to do with leadership. See if you can place the letters in the proper order to spell complete words.

heifc (chief)	givor (vigor)	digudrsnntaen (understanding)
larede (leader)	cpanati (captain)	
woper (power)	gretntsh (strength)	
macodnm (command)	pelbaca (capable)	
raocuge (courage)	lilks (skill)	
yrefidnl (friendly)	entrilse (listener)	

The following symbolic units have to do with words common to our information on leadership. Fill in the missing letters:

au_ho_ity (authority)	r_sp_ns_b_l_ty (responsibility)
in_lu_n_c (influence)	ac_om_li_hm_nt (accomplishment)
a_il_ty (ability)	fr_en_li_e_s (friendliness)
d_p_nd_b_l_ty (dependability)	g_i_a_c_ (guidance)
t_us_w_r_t_ (trustworthy)	_in_n_ss (kindness)
d_l_g_nc_ (diligence)	w_k_ (work, week, weak)
a_er_n_ss (alertness)	kn__le__e (knowledge)
	f__r_e_s_ (fairness)

X. FOLLOW-UP ACTIVITIES

Provide opportunities in the classroom for your students to exhibit leadership qualities. Make this continuous.

LEARNING CONTRACTS

I. What is an Independent Learning Contract?

- A. Independent learning contracts are the basis for the Independent Learning activities. A contract is an agreement between the teacher and the student. It states what the student will learn and how he will go about acquiring the specified skills and knowledge. A contract may be as simple as an agreement that the student will solve correctly six mathematics problems. Or a contract may involve the successful achievement of a number of learning objectives and the completion of a number of learning tasks.
- B. A contract includes seven elements that support successful Independent Learning. These are:
 - 1. Specification of what is to be learned.
 - 2. Specification of how the student will demonstrate that he has learned the skills and knowledge included in the contract.
 - 3. Identification of the resources the student will use in the completion of his contract.
 - 4. Outlining of the major steps, or tasks, the student will complete.
 - 5. Establishment of checkpoints for determining the student progress.
 - 6. Establishment of deadlines for completion of the contract as a whole and the sub-parts of it.
 - 7. Identification of the next activity the student can anticipate doing.

II. What are the Advantages of a Learning Contract?

- A. A major advantage of an independent learning contract is that it gives the student an "I'm in charge of my own behavior" concept. The benefits of such a concept are demonstrated in a study conducted by Lovitt and Curtiss (1969). They found that a twelve-year-old student completed more activities and achieved a higher level of learning when he worked under a self-imposed, rather than teacher-imposed, contract.
- B. The learning contract also contains other features that are advantageous for the student and the teacher. For example, the contract serves as a record of student progress. When learning steps are identified, they can be marked off as they are completed. This provides a progress record to which both the teacher and student may refer.
- C. Further, by establishing in advance the times at which the student is to check on his progress, the contract provides another means for monitoring the student's work. Since the student is to contact the teacher when he reaches the agreed upon point for a progress check, the teacher can be free to work with other students without undue concern about the learning endeavors of the student who is

working independently. In addition, the deadlines you establish for completion of the various parts of the contract also alert you to the times when a student needs your assistance. If a student fails to contact you on a particular deadline, you inquire into the reason for the delay as soon as possible.

D. Describing an anticipated activity is another advantageous feature of an independent learning contract. When an entire class is involved in independent learning activities, it sometimes is impossible for the teacher to meet with a student to develop a new contract immediately upon the completion of a previous one. The anticipated activity serves as a bridge between the current and next contract. It allows the student to continue to engage in a fruitful activity without the need for intervening teacher direction.

E. The learning contract has three major advantages.

1. It helps the student to function independently by informing him ahead of time about what he is to do.
2. By helping the student assume responsibility for his own self-management, the contract frees the teacher from unnecessary managerial duties. This, in turn, provides the teacher time for working on the learning needs of individual and small groups of students.
3. The contract provides a basis for a continuing source of information regarding the student's progress toward the achievement of a particular learning objective. The student knows whether he is moving ahead as he should in the sequence of learning steps. The teacher is able to monitor, efficiently and effectively, the exact point at which the student is working. He is able to interact with the student at various points in the contract to verify the progress that has occurred while the student was working independently.

F. The contract serves both as a monitoring tool for the teacher and as a learning guide for the student.

III. Overview of Teaching Behaviors in Contract Development

- A. Seven behaviors are involved in the development of independent learning contracts. Each of these behaviors is associated with one of the seven elements of the contract.
- B. The following paragraphs provide a brief overview of the seven skills you will be acquiring for contract development. Study the explanations carefully so that you will understand the critical characteristics of each of the seven behaviors.

Behavior 1: Specify what is to be learned

The first behavior is concerned with stating the learning objective for the contract. Two requirements are important in judging the use of this behavior.

1. First is the exactness, or preciseness of the statement of the learning objective which results from teacher-student planning of a learning contract. A precise

statement of what is to be learned uses terms such as to list, to compare, and to describe, rather than vague terms such as to know, to understand, or to appreciate. A precise objective tells what the student will be able to do as a result of his learning experiences, and it is stated so that a teacher can observe what the student has learned. Being precise in stating what is to be learned is important because it establishes a definite goal for the student.

2. The second requirement in judging what is to be learned is the extent to which the objective stresses learning of factual knowledge or more complex cognitive skills. Objectives concerned with learning of factual knowledge involve such terms as to name, to describe, to list, to identify. Statements of objectives related to more complex cognitive skills are to compare, to solve, to interpret, to apply. Both types of objectives can be appropriate, and both may often be included in a single learning contract. As a general rule, you will want to emphasize objectives which stress higher cognitive skills.

Behavior 2: Specify how learning will be demonstrated

A learning objective must include a statement of how the student will demonstrate what he has learned. This statement of how learning will be demonstrated must be exact. If the student is expected to achieve a certain level of performance (to solve mathematical problems in division, for example), the objective must state what will be included in the testing situation and what portion of the items or activities the student must complete correctly. If the student is to demonstrate learning by developing an acceptable finished product (to draw a map or construct a model, for example), the objective must describe in exact terms the form and content of the product.

Behavior 3: Identify available resources

It is easy to develop a learning contract that relies upon books as the primary learning tool. However, it is important that students' learning experiences include much more than the reading of books. Effective identification of resources includes the use of both books and other learning resources.

Behavior 4: Specify learning steps

A contract should specify the learning steps which the student must complete in order to achieve this objective. Three considerations are involved in judging the specification of learning steps in a contract: (1) whether all of the steps necessary to achieving the objective are stated; (2) whether the steps are organized in an appropriate and reasonable sequence; and (3) whether the learning steps include manipulative as well as verbal activities.

Behavior 5: Establish checkpoints

Checkpoints are places at which a student marks off his progress in working on a learning contract. There are many ways, other than interaction with the teacher, that a student can check his progress. He may check his own progress by referring to an informational source, by self-checking on a test or quiz, by consulting with an adult other than the teacher (aide, librarian), or by comparing his results with those of other students engaged in a similar area of study. Checkpoints with the teacher should be established only at those steps in the contract at which teacher verification of progress is critical to accurate learning.

Behavior 6: Establish deadlines

Deadlines are dates by which a student is expected to complete a particular learning step and the contract as a whole. They are used to help the teacher monitor student progress and to assist the student in pacing his learning. It is important that deadlines be based upon a reasonable amount of learning time for the tasks involved and for the individual student.

Behavior 7: Describe anticipated activity

An anticipated activity is one which the student may undertake when he has completed his learning contract. It is undertaken in the time after he has completed his contract and before meeting with the teacher to plan another contract. It must be something the student desires to do and should be specified by the student, rather than the teacher.

Contract # _____

TOPIC: _____

OBJECTIVE (Must state specifically what you will do and how you will prove it.)

1. _____

2. _____

3. _____

RESOURCES:

STEPS (Must be in sequence.)

CHECKPOINTS
(indicates when you
see a teacher -
teacher signs if OK)

DATE DUE

1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

REWARD:

SIGNED:

Student _____

Teacher _____